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ARCHAEOLOGICAL EXPLORATIONS IN PERU

PART I

ANCIENT POTTERY FROM TRUJILLO

BY

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13 Plates, 4 Text-figures

FIRST CAPTAIN MARSHALL FIELD ARCHAEOLOGICAL EXPEDITION TO PERU

BERTHOLD LAUFER
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PREFACE

During the first half of 1925 I was commissioned by Field Museum of Natural History to conduct archæological explorations in Peru. This work was done under authorization and supervision of the government of Peru, which retained such of the objects secured as seemed necessary from the point of view of national interest. Appreciation is herewith expressed, for permits and courtesies received and for the desire manifested to encourage the progress of scientific knowledge, to his Excellency President Leguia; to Sr. A. Maguiña, Minister of Justice and Education; to Dr. Alberto A. Giesecke, Director of Instruction; and to Dr. J. C. Tello, Director of the new national Museum of Peruvian Archæology.

Most of the explorations made were carried on in the coast areas of central and southern Peru. Delays incident to the classification and description of a collection, and the editing of notes, have deferred the completion of the proposed full report on the results of this work. This present preliminary monograph deals only with the pottery art of the northern coast region in the vicinity of Trujillo, which was more briefly visited.

Trujillo is the second oldest Spanish city in the land, the largest in northern Peru, and more or less in a class with Cuzco, Arequipa, and Callao in being in the primary population rank after Lima. It also has in its immediate vicinity the prehistoric remains of Chanchan and Moche, the former perhaps the largest ruined city of Peru, the latter containing probably the highest pyramid at least in the northern part of the country. The valley, however, seems not to be notably larger than others in north Peru. It is exceeded in size, in exports, and in agricultural productivity by the valley of Chicama adjoining it on the north; and it does not seem markedly richer than Chicama in prehistoric specimens. It is likely that many of the specimens labelled "Trujillo" in museums are actually from Chicama, the name of the metropolis of the region having become attached to them instead of that of a farming district little known abroad. On the other hand, Chicama, in spite of its richness in specimens, and in small or moderate-sized ruins, seems to contain no sites of the extent or impressiveness of Moche and Chanchan.

ARCHAEOLOGICAL EXPLORATIONS IN PERU

PART I

ANCIENT POTTERY FROM TRUJILLO

KNOWN POTTERY STYLES FROM TRUJILLO

Trujillo is one of the centres yielding the Chimu or Trujillo or Northern Coast type of pre-Hispanic pottery, which was for a long time, with the possible exception of Inca products, the ancient native ware best known and most abundantly represented in collections outside of Peru. It is the style characterized by the finest and most effective modeling, by a luxuriance of vessel forms bearing a narrow mouth or a hollow stirrup-shaped handle, by the frequency of bucchero or smoked blackware, and by a sparing use of color in all cases. There are two well-known varieties of this Chimu pottery, one red and white (with a small admixture of smoked pieces), the other usually black (but sometimes colored). The distinction between these two varieties is generally recognized in Trujillo to-day, and must have been known long ago, since each of the two great ruins of the valley yields vessels overwhelmingly of one type.

So far as science is concerned, a classification of Trujillo ware was first made by MAX UHLE, who having excavated at Moche for the University of California in 1899, announced his results at the Thirteenth International Congress of Americanists at New York in 1902,[1] and later published a compact, important paper.[2] Uhle showed conclusively that the red-white style is earlier than the one in which blackware is in the majority. He named the two styles respectively Proto-Chimu and Chimu. As the latter contains Inca admixture at times, the designation Late Chimu seems warranted and more likely to avoid confusion. Tello uses "Tallan" for the blackware variety, whose centre seems to have been in the habitat of the Tallanes north of Trujillo. He reserves the term "Chimu" for the red and white style ware.[3]

Uhle did not limit himself to Proto-Chimu and (Late) Chimu, but briefly described scantier remains of several other styles which he intercalated between these two dominant ones.[4] These others are a Tiahuanaco-like ware; a post-Tiahuanaco or Epigonal ware; a non-Tiahuanaco ware as to whose temporal distinctness from the post-Tiahuanacos material he does not seem to be quite

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[1] Types of Culture in Peru, *American Anthropologist*, n.s. Vol. IV, 1902, pp. 753–759.

[2] Die Ruinen von Moche, *Journal de la Société des Américanistes de Paris*, n.s. Vol. X, 1913, pp. 95–117. Cited hereafter as "Uhle, Ruinen."

[3] Introducción a la Historia Antigua del Peru (Lima, 1921). His chronological diagram in this work postulates a "Pre-Tallanes" and a "Pre-Chimu" culture, which are not described in the text. The red and white style (his Chimu, Uhle's Proto-Chimu), centering at Chanchan, is placed in the upper half of his Second or Pre-Inca period (*ca.* A.D. 800–1150). It would therefore not commence until about A.D. 1000, and is represented as influenced by the First Period Andean style of Chavin (previous to A.D. 800). The blackware or Tallanes style is placed at the end of the Second Period. Both continue into the Third or Inca period (A.D. 1150–1530). Also see p. 43.

[4] UHLE, Ruinen.

clear; and a Red-white-black Geometric ware similar to a well-known style of the central Peruvian coast. The latter is established as earlier than Late Chimu by a stratification encountered by Uhle. As to the place in time of the three other non-Chimu styles, his evidence is complex and indirect. Working over his collections and data, I was led to doubt whether these three "mediæval" styles could be separated from one another in time.[1] On the other hand, it does appear that the available indications make them earlier than Late Chimu and later than Proto-Chimu. Thereby the priority of Proto-Chimu civilization to that of Tiahuanaco seems established. Or at least, to move conservatively with SELER,[2] the priority of Proto-Chimu to the arrival of Tiahuanaco influence in the Chimu area seems certain.

These intermediate styles, whether they represent as many periods or only one period of mixed foreign influences, however interrupt the development from Proto to Late Chimu, which two styles are manifestly more similar to each other than either is to the intrusive styles. It is conceivable that the Proto-Chimu style died out under foreign influence or conquest, and was then subsequently revived in the somewhat altered Late Chimu manner. But the hypothesis of such a renaissance seems weak: Late Chimu is too close to Proto-Chimu in most fundamentals to make a complete interruption probable, and appears too vigorous in its motivations for a resurrected art. The more likely as well as simpler explanation would be that the old Proto-Chimu art carried on, if not at Trujillo, then elsewhere on the northern coast, during the era of foreign influences, and reappeared as Late Chimu at the end of a continuous development on Chimu soil. This theory postulates a "Middle Chimu" style; and to test the theory, I have stylistically analyzed available Chimu pottery with a view to isolating an ingredient that might fairly be described as intermediate in character between Proto and Late Chimu; but without arriving at more than tentative conclusions.[3]

There exist published indications of still other styles in the Chimu area. One of these is represented by three-legged open bowls included by Dr. Uhle in his "non-Tiahuanaco" material, and apparently recognized as distinctive by W. LEHMANN.[4] Not only does the form of these vessels suggest affinities with more northerly areas, but their decoration is in many cases more cursive than customary in Peruvian ceramics. They connect, however, with other three-legged examples painted in more or less Epigonal manner[5] and, according to a personal communication made by Sr. Jijón y Caamaño, with the Tuncahuan style of Ecuador.

Equally distinctive, and esthetically of genuine impressiveness, are a small number of vessels (Plate XII), nearly all in the Museo de Arqueología Peruana (formerly Larco Herrera) in Lima, several of which have been illustrated and

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[1] KROEBER, The Uhle Pottery Collections from Moche, Univ. Calif. Publ. Am. Arch. and Ethn., Vol. XXI, 1925, pp. 191–234. Cited as "Kroeber, Moche."

[2] Gesammelte Abhandlungen, Vol. V, 1915, p. 130.

[3] KROEBER, Moche, pp. 221–224.

[4] The Art of Old Peru (London, 1924), p. 40, note 68. KROEBER, Moche, pp. 212–213.

[5] HRDLICKA, Smithsonian Misc. Coll., Vol. LVI, No. 16, 1911, Plate 1; KROEBER, Moche, Plate 69a,b.

interpreted by TELLO.[1] He designates them as examples of the type of Chavin, on account of their decoration being manifestly related to a remarkable style of carving found in stone monuments at Chavin, in the north Peruvian interior. On the other hand, the attributed provenience of the pottery pieces is the coast valley of Chicama, the one next north of that of Trujillo; and the vessel shapes are coastal: stirrup-mouths, generally.

Still other styles, or stylistic influences, will be discussed below. Those mentioned may be recapitulated thus:—

Proto-Chimu, red and white modeled, free from specific Tiahuanaco influences.
Late Chimu, black modeled; usually with some admixture of Inca aryballuses.
Middle Chimu, hypothetical.
Tiahuanaco, Tiahuanaco derived (Epigonal), and Tiahuanaco influenced.
Red-white-black Geometric, stratigraphically below Late Chimu.
Cursive, on tripod bowls.
Chavin.

DISTRIBUTION OF KNOWN STYLES

As to the distribution of these various styles within the northern coast region, only two facts seem as yet established. The first is that nothing in true Tiahuanaco manner, or in the true Red-white-black Geometric style, has yet been found north of Trujillo; although in the face of the incompleteness of all Peruvian archaeological data, any such negative record must be provisional.

Better founded, because based on some thousands of specimens whose source is known at least as to district, is the unequal distribution of Proto-Chimu and Late Chimu. The latter is by far the more widely spread. It occurs pure, with only minor regional variation, from Piura to Casma; and can be followed as far as Ica and Nazca. Proto-Chimu, on the other hand, belongs to the valleys of Chicama, Trujillo, Viru, Chao, and the Lower Santa (Chimbote). In these its remains are about equally numerous with late Chimu ones. The next valleys to the north and south, respectively those of Pacasmayo (Chepen) and Casma, still contain some Proto-Chimu pottery, but as a minor constituent of their antiquities; and beyond, it has not been reported. By valleys, the distribution of Proto-Chimu and Late Chimu is:[2]—

Chira (Amotape)		L Ch?
Piura		L Ch
Lambayeque (Chiclayo)		L Ch
Eten		L Ch
Sana		L Ch
Pacasmayo (Chepen)	(Pr Ch)	L Ch
Chicama	Pr Ch	L Ch
Trujillo (Catalina)	Pr Ch	L Ch
Viru	Pr Ch	L Ch
Chao	Pr Ch	L Ch
Santa (Chimbote)	Pr Ch	L Ch
Casma	(Pr Ch)	L Ch
Huarmey		(L Ch)
To south beyond[3]		(L Ch)

[1] Introducción, *op. cit.*, Plates 8–12.
[2] KROEBER, Moche, pp. 224–229.
[3] KROEBER, Univ. Calif. Publ. Am. Arch. and Ethn., Vol. XXI, 1925, pp. 239–240.

OBSERVATIONS ON SITES

The summer preceding my visit was the rainiest remembered in Trujillo. The figures given me were of a rainfall of 290 mm during three days of March, 1925, and over 300 mm for the season, as against an aggregate of 28 mm for the eight preceding years 1917–1924. That is, a foot fell in 1925 as against an average of about an eighth of an inch previously. Practically every structure in Trujillo was damaged, and wide-spread suffering resulted. The ruins did not escape unscathed. At Chanchan one of two adobe relief mosaics,[1] which I had seen in good condition of preservation in January, while my steamer lay for some hours in Salaverry, was destroyed down to the barest traces; the other remained in fair state, but was apparently considerably injured. At Moche, damage was done to the mass of the great Sun pyramid, for which the improved view now afforded of its interior structure is only slight compensation.

MOCHE

The ruins of Moche, nearly equally distant from Moche and Trujillo, are customarily approached from the smaller town, but in the dry season when the river has shrunk, can no doubt be conveniently reached from Trujillo in a few minutes by automobile. They rise impressively, somewhat like the pyramids of Teotihuacan, though less high and less bold. They lie between the conical peak called Cerro Blanco and the Moche river—the stream of the valley of Trujillo—on the southern edge of that valley, a few kilometers from the sea. There are no city walls and no significant small mounds or outworks, the ruins being substantially confined to the Huacas ("temples" or "pyramids") of the Sun and the Moon. Both names are probably unauthentic. The Huaca de la Luna is a terraced platform built on the lowest slope of the Cerro Blanco. Across a dry plain, with its back against the river, the much larger Huaca del Sol rises free. The principal cemetery is behind the Moon platform, in the sandy slopes of the Cerro, and follows the hill around to both sides for some distance. As at most sites of major importance, huaqueros were digging loot in the cemetery the day of my visit.

Moche is distinctly a Proto-Chimu ruin, both in popular local opinion which characterizes its pottery as "colorado," and superficially to the eye. Practically all sherds are red. The great majority of these are coarse and unornamented, from utilitarian vessels; but fragments that show modeling or are neatly painted in red and white can be picked up without difficulty. Not only the cemetery beside and behind the Moon pyramid looks red from a distance from the abundance of sherds, as MIDDENDORF[2] says; the same is true of the local plain between the two pyramids.

My estimate from surface conditions as compared with those at Chanchan would have been that Moche was essentially a Proto-Chimu site, and its Late Chimu occupation sparse or brief.

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[1] These have been repeatedly illustrated; for instance, in MIDDENDORF, Peru, Vol. II, p. 376.

[2] Peru, Vol. II, p. 397.

The Sun pyramid formerly had a *monte*, a strip of trees and brush, between it and the river. This vegetation shows in several of Uhle's photographs taken in 1899. Through this vegetation ran an acequia. This ditch received a large part of the flood flow of the river in March, 1925, the brush was torn out, and has been replaced by a bare waste, and the river scraped against most the western length of the oblong pyramid, causing quantities of adobes to fall. At the projecting southwestern corner the adobes obstructed the flow, and in May were still damming a considerable pond that washed the foot of a great part of the pyramid.

The undercutting and falling, which obviously have also occurred on previous occasions,[1] reveal the internal mass of the pyramid as built solidly of the large, well-squared adobes that are visible on the surface and in excavations on both pyramids. There is none of the retaining wall and fill, or chamber and fill structure, that is so characteristic of the equally large elongated pyramids of Aramburú in Lima valley. What is more, apparently the whole height of the Sun pyramid, and at least most of its length, were carried up at one time, as a single undertaking. This is again in contrast with Aramburú, where the indications are of a gradual accretion both horizontally and vertically. The Sun pyramid structure is uniform and uninterrupted. Near the northern, lower end, the cut face above the talus shows pilasters a few adobes wide and from 5 to 8 m high, each apparently raised by itself, since the joints do not break between one column and the next. Probably each apparent column is the end of a wall that runs across the breadth of the pyramid, and the edifice was raised, at least in this portion, by building up walls side against side. This might conceivably have been done at intervals; but the walls or columns are so alike as to suggest that their separateness is only an incident of the method of construction, and that they were reared more or less simultaneously (see, further, p. 43).

It is clear that in spite of the masonry of the Sun pyramid being unusually good—and that of the Moon is identical—it agrees with all other Peruvian brick and stone construction in not insisting vigorously on the breaking of joints as a fundamental principle. Some compensation is found in the fact that courses of adobes are not infrequently laid in different directions, cross instead of lengthwise, or even on edge. These variations seem to have been decoratively rather than structurally motivated, since they are observable mostly in exterior work. They were also noted at Chanchan.

The Huáca del Sol as a whole (i.e. its substructure or lower pyramid) is oblong and five-terraced. Its southern half is surmounted by a square seven-step pyramid somewhat higher in itself than is the substructure. At the southern foot of this upper pyramid there is a ledge or platform of the substructure or lower pyramid.[2] This is "site A," which was used as a cemetery, and in which Uhle obtained his Tiahuanaco, "post-Tiahuanaco," and "non-Tiahuanaco"

[1] Middendorf (Peru, Vol. II, p. 396) tells of attempts made in 1602 to find treasure in the huaca by hydraulic excavation.

[2] Kroeber, Moche, map Plate 50, site A corresponds to Uhle, Ruinen, map Fig. 1, site D; also to area C (not A) in the larger scale map in Uhle, Fig. 3 and Kroeber, Fig. 4. The designation "site A" is retained because it is the one originally applied and used in the cataloguing of the collections made at Moche by Uhle for the University of California.

specimens. The precise conditions surrounding these three lots of material were however sufficiently complicated and obscure[1] to make a re-examination of the site A platform desirable. My hopes in this direction were destroyed by the rains of the year, which completely wrecked any traces of structure that previous excavations might have left. Where Uhle speaks of a cemetery filled with grave soil 0.8 m deep, in which were constructed tombs,[2] there are now gashes and gullies several metres deep, smeared over with dissolved adobe, and with but few scattered sherds showing. Even the most painstaking excavation would probably reveal nothing certain.

On the other hand, there is a similar, slightly smaller platform at the north foot of the upper pyramid.[3] This has been somewhat less torn up by excavators and water than the southern platform. The holes in its surface suggested rifled tombs originally sunk into the adobe mass of the pyramid, rather than tomb chambers of adobes erected in "grave-soil," as Dr. Uhle describes the few intact interments he succeeded in finding in the opposite A terrace. But excavation would be needed to establish this point, if, indeed, anything can still be determined in regard to a spot so considerably ruined. The wash of the recent rains afforded at least one advantage: an exceptional number of sherds had been exposed by them. The usual overwhelming majority of plain pieces resembled the fragments to be found elsewhere in the Moche ruins in texture and general red color. Of the painted or modeled sherds on this north platform, some were pure red and white Proto-Chimu; others consisted of low ring pedestals of shallow bowls, or of parts of the sides of such bowls pressed in relief. Parts of several such bowls were gathered (No. 169901). This is a significant occurrence because no sherds of such bowls were seen elsewhere in the ruins; and particularly because Uhle collected twenty such bowls, wholly or partly preserved, in his excavations of the south platform.[4] They constitute in fact the largest group of vessels found by him on the platform, and are more numerous than either the "Tiahuanaco" or the "Epigonal" vessels. My fragments are therefore a corroboration of his results at site A, especially in view of his having excavated carefully for days or weeks, whereas I only gathered from the surface for an hour, twenty-five years later. In short, there can remain no doubt that both platforms flanking the upper pyramid of the Huaca del Sol were used as cemeteries of a non-Chimu and post-Proto-Chimu culture which has not yet been found elsewhere at Moche, but which has definite affiliations to the south, as at Supe.[5]

CHANCHAN

The dead city of Chanchan is probably the largest ruin in Peru, even surpassing Pachacamac in extent. It is a maze of walls, with large empty courts and spacious rooms or houses. It contains three or four good-sized huacas, but

[1] KROEBER, Moche, pp. 207–212.

[2] UHLE, Ruinen, Fig. 14.

[3] Area B of UHLE, Fig. 3, and KROEBER, Fig. 4.

[4] KROEBER, Moche, 210, Plates 65g, h, i, 66h.

[5] KROEBER, The Uhle Pottery Collections from Supe, Univ. Calif. Publ. Am. Arch. and Ethn., Vol. XXI, 1925, pp. 235–264; especially Plates 73k–o, 75g–k, 78d, f, k, n; also p. 246, No. 19.

the smaller pyramidal structures sometimes interpreted as chiefs' houses are relatively less numerous than at Pachacamac. The large huacas have been much spoiled by gold hunters. Their names were given me with uncertainty; but one, which is perhaps the huaca in which the legendary peje chico of treasure-seeking was found in the sixteenth century, has been exposed to its very bowels. Its material is adobes, smaller than those at Moche, but fair-sized. The innumerable walls of the town seem at first glance to be of tapia, continuous clay construction; but breaches and slips reveal that considerable parts of them are of adobes similar to those of the huacas, the aggregate being coated with clay. As at Moche, successive courses of bricks are sometimes laid with different faces up. On the whole, the walls have stood up well, not infrequently retaining a height of 5 or 6 m, and give an impression of relative recency.

Chanchan is bewilderingly intricate in spite of the roominess of many of its enclosures, and the sketch plans long ago published[1] cannot but be inadequate. Bandelier, who worked here some thirty years ago, made a large scale plan of the ruins which, it is to be hoped, may be made use of by publication before suffering the accident which is the fate of so many manuscripts.

The fact of the adobes of Chanchan being smaller than the earlier ones of Moche brings up an instance of a caution; namely, against the hasty identification of a culture with a style of building material, such as large adobes with the Incas, tapia with the immediate pre-Inca civilization of the coast, adobe lumps or Cyclopean masonry with primitive periods. Not that general construction trends characteristic of civilizational periods are lacking in Peru; but there seems to exist a greater variability within cultures than most writers convey. What is needed is, first, more exact data on the building materials of a greater number of specific sites whose pottery or other artifacts are known; and then a matter-of-fact synthetic interpretation of the data. It is rather evident that wherever Nazca influence is discernible on the coast, round adobes are frequent, and that definitely Inca structures tend to contain large well-squared ones. But the present example serves to show that the larger bricks of good quality may also be the earlier ones; and many cases prove that the prevailing building habit of a period or culture was often locally or temporarily modified, perhaps by availability of material, example of neighbors, or obscurer causes.

Chanchan itself is remarkably poor in pottery fragments, and nearly all that appear are plain red—fragments of utilitarian vessels that got broken now and then. There are also few evidences of burials within the walls. I found one small cemetery, whose style and remains tallied exactly with those outside the city.

The large cemeteries lie between the city and the beach, stretching perhaps 2 or 3 km, possibly more, as I did not examine the area northwest of the town. Immense quantities of material have been extracted by huaco hunters without exhausting the supply. I saw unlicensed diggers at work, and was told that until the March floods from ten to fifteen could sometimes be found operating on one day. The cemeteries are on a sort of terrace which is nearly of the level of the

[1] For instance by MIDDENDORF, Peru, Vol. II, pp. 373, 374.

city, and separated from the ocean not only by the beach, but by a belt of low land, partly marsh. Into this swampy tract the cemetery terrace runs out in several tongues; between two of which rushes were being cut and bundled for a balsa at the time of my visit. At first the cemetery terrace seems natural,—the edge of the peneplain on which the city stands. But inspection shows several of the tongues to have a definitely rectangular outline, such as could scarcely be produced by natural agencies alone. Toward the south, the contours look less artificial, and there are stratifications that seem due to geological rather than human forces. The material is loamy or sandy soil and worn rock from the hills, not beach stones.

The pottery on the surface is both red and black. The contrast to the all red surface fragments of Moche is striking. Further, none of the redware is ornamented, but much of the blackware is. This means that the fine and most characteristic pottery of Chanchan is black, the red fragments being from household vessels. I was told that at the north end of the cemeteries graves contain only blackware, while at the south end both red and black vessels of quality occur; but I cannot confirm this statement.

Toward the south, several low, yellowish mounds rise from the marsh, which I did not have opportunity to visit. They are said to be huacas that contain graves, but are not often dug into, because their loose sand makes deep excavation difficult under the unsystematic burrowing methods followed by the huaqueros. I secured seven vessels attributed to these small huacas in the marsh. These specimens are described below: they are mostly Late Chimu of regular type.

It is evident that there are vessel forms in which collectors are not interested and which huaqueros therefore do not trouble to bring in. Such, for instance, are rather large black plates with steepish sides (Fig. 1 on p. 24). These are often of good quality and well polished. They lie about recently opened graves; but, precisely because they can be had for nothing, seem rarely to have found their way into museums or scientific records.

The excavation debris on the cemeteries is surprisingly similar to that of the majority of sites between Lima and Nazca—the more recent pre-Hispanic ones. There are the same undeformed or occipitally flattened skulls, often stained green about the teeth from a bit of copper laid in the mouth. The frequency, or degree, of flattening is possibly a little greater at Chanchan than farther south. Bodies are flexed, but seem to vary between seated and lying position. They are mostly fragile and, since the huaqueros treat them merely as signposts to the vessesl or metal that may surround them, it is often impossible to tell the position of a body even in a recently opened or partly opened burial. Textiles are also badly preserved; in general, the average quality seems rather poor, the types similar to those from Lima south. Spindles, weaving implements, and wooden agricultural tools also resemble those on the central coast. It is clear that in the last century or so before Pizarro the culture of the whole coast of Peru was comparatively uniform.

A name seems needed for this wide-spread form of civilization of which Late Chimu, Late Ancon, Sub-Chancay, Late Chincha, Late Ica, etc. are, in the main,

only local varieties. I would suggest "Late Coast," or possibly "Late Peruvian" if many elements of the culture should prove to extend to the interior. Dr. Uhle in his "Pachacamac" seems to imply the same meaning by his General or Common Culture of the Coast; but these phrases are cumbersome. Dr. Tello says simply "Inca," with reference to the fact that specific Inca forms are on the coast associated with this type of culture, even though the most characteristic and prevalent elements of the culture are not of specific Cuzco type.

UPSTREAM SITES

Moche and Chanchan dominate, but do not exhaust the archæology of Trujillo valley.

Upstream, on the south side of the river, is a group of fair-sized mounds near Santo Domingo.

Farther up, about Quirihuac, are three sites. Just upstream from the settlement, on a "pampita" at the foot of the cerros, is a cemetery, without surface indications, of shallow and deep graves in rocky soil. The sides and covers of the graves are of stone. The sherds are pure Proto-Chimu red and white.

On the opposite, south side of the river are the other two sites. One of these, downstream about 2 km, is a terraced mound with tombs. The other, Jesús María, is upstream about the same distance on a sandy pampa or quebrada delta. Both are said to yield the same red and white pottery as Quirihuac and Moche.

TYPES AND STYLES

While no excavations were made at Trujillo, several collections were seen, and one formed with unusual intelligence by Sr. Fernando Jacobs was purchased for the Museum. Of this, a selection was retained by the Museo de Arqueología Peruana. The remainder, with a few odd pieces bought, the observations made, and the data available in literature, render certain interpretations possible.

PROBLEMS OF SHAPE

It will first be desirable to define several vessel shapes which will be referred to frequently. These shapes, with the names and symbols adopted for them, are shown in Fig. 2 (p. 25).

The stirrup-mouth, SM, is the pottery form most characteristic of Trujillo and the northern coast area. It is abundant both in Proto and Late Chimu. It does not appear elsewhere in Peru except in associations which either show other Chimu traits or are definitely late. Most frequently at a distance from the Chimu area, the stirrup-mouth appears associated with aryballus or other specific Inca forms. This shape then is clearly a Proto-Chimu invention, so far as Peru is concerned.

The double-spout, DS, is fairly common in Late Chimu, but wholly lacking from Proto-Chimu. Its earliest occurrence in Peru seems to be in the Nazca region. It is characteristic of both the principal Nazca (Proto-Nazca) styles, which GAYTON and KROEBER[1] have designated A and B and Dr. Tello Nazca and Pre-Nazca, and which, being free of Tiahuanaco influences, are almost certainly pre-Tiahuanaco in age. The double spout is therefore clearly old on the southern coast, and was probably invented there. In its Nazca form the spouts are short, cylindrical, and parallel; that is, vertical. Outside of the Nazca style the spouts are always long, tapering, and spreading. Quite frequently also the non-Nazca double-spout vessels bear Tiahuanaco-influenced designs, as at Pachacamac, Ancon, and Supe.[2] In Late Chimu these Tiahuanacoid designs are lacking, but the form of the vessel is that which it has in central Peru. Definitely late ware south of the Chimu area has few double-spouts: this shape evidently went practically out of use in the region of its presumable origin, while it was still flourishing in the region which it reached latest.

The head-and-spout, HS, looks like a modification of the double-spout, a modeled head replacing one of the spouts. It is not found in Nazca style A, but occurs in Nazca B (Tello's Pre-Nazca). On the central coast it appears in association with the Tiahuanaco-influenced double-spouts.[3] In the north, the head-

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[1] Univ. Calif. Publ. Am. Arch. and Ethn. (in press).

[2] For instance, KROEBER, Supe, work cited, Plate 74.—The Proto-Lima ware of Nievería and especially the Chancay El style ware include double-spouts that are nearer in shape to the Nazca ones than those in other central coast styles (KROEBER, Chancay, Univ. Calif. Publ. Am. Arch. and Ethn., Vol. XXI, Plates 88, 89); but there is other definite Nazca influence in these two styles.

[3] As at Supe: KROEBER, Plate 74.

and-spout is lacking from Proto-Chimu, but is fairly frequent in late Chimu.[1] This again looks like a gradual spread from south to north, and supports the interpretation of the shape as having arisen out of the double-spout. On the basis of mere form, the head-and-spout could theoretically be just as well derived from the stirrup-mouth, since the stirrup often occurs attached to a modeled human or animal figure (Plate II, Figs. 1, 3, 5). But such an interpretation would leave the south and central Peruvian distributions and sequences unexplained.

The figure-and-spout, FS, is even more obviously related to the double-spout. Its distribution and history are similar to those of the head-and-spout, except that it is rarer in south and middle Peru, and seems to have had its main vogue in the late Chimu style. The double jar, whose discussion follows, may have had an influence in the development of the figure-and-spout vessel.

The double jar, DJ, has a reverse history from the preceding shapes. It does not occur in pure Nazca style ware, but is found in Proto-Chimu.[2] It is relatively more abundant in Late Chimu.[3] Farther south, it is not common except in association with Chimu or Inca influences. For this shape, then, the indicated spread was from north to south. It has evidently affected the head-and-spout and figure-and-spout shapes, perhaps largely causing their development out of the double-spout. This conclusion is confirmed by the fact that the Chimu double jars, both Proto and Late, whistle when they are blown into or when water is tilted from the rear into the front chamber. The Late Chimu figure-and-spouts and head-and-spouts also whistle; whereas those from farther south usually do not, except when they are late and Chimu-influenced.

The handled and handleless jars, HJ and J of Fig. 2 (p. 25), require no comment other than the observation that the handled form does not occur in Proto-Chimu whereas the handleless is exceedingly common.[4] The only handled shape in Proto Chimu has a long, even, vertical spout with a round quarter-circle handle,[5] and is without figure modeling. This shape is evidently related to the stirrup-mouth. On the contrary, Late Chimu jar-handles are typically flat instead of cylindrical, in which they agree with Late Chimu double-spouts, double jars, and figure and head-and-spouts, whose "bridges" are ribbon-like. Proto-Chimu bridges on double jars have half-rounded handles. There is thus a definite pattern set that holds consistently for Proto-Chimu and another that holds largely for Late Chimu. The characteristic Proto-Chimu form that has a handle or equivalent is the stirrup-mouth; the long-spouted jar and double jar have their cylindrical or roundish handles determined by the stirrup-mouth. Late Chimu retains the stirrup-mouth, but has nearly lost the long-spouted jar,[6] has made its double jar-bridges flat to conform with the flat bridge of the introduced double-spout and its derivations, and has added a flat handle to many of its ordinary jars.

In summary, the earliest known pottery of the northern coast (Proto-Chimu) is characterized by double jars and especially by stirrup-mouths and by absence

[1] KROEBER, MOCHE, Plate 60a, Late Chimu, vs. no examples in a larger Proto-Chimu collection, Plates 53–59.
[2] KROEBER, Moche, Plate 56k, l.
[3] *Ibid.*, Plates 60c, i, 61b, 62e; see also Plate IX of this publication.
[4] KROEBER, Moche, p. 201, shapes 6 and 7, 221 pieces out of 594; cf. Plate 59.
[5] *Ibid.*, shape 8, 25 pieces out of 594, Plate 57a, b, c. Compare stirrup-mouths, shapes 9-15: 251 of 594.
[6] When it does occur, the spout tapers, and the handle is flat.

of handles except tubular ones related to the stirrup. The earliest known southern coast ware (Nazca) lacks these forms, substituting the double-spout and derivative head-and-spout. Its handles are confined to flat bridges on these shapes. Early central coast pottery was without any such distinctive shapes, but was invaded by the southern ones, which underwent modification and became associated with highland (Tiahuanacoid) traits. These modified forms were accepted in the north in Late Chimu times, alongside the old native northern shapes, plus hybrids like the figure-and-spout, and with a general prevalence of flat handles.

The foregoing analysis serves three purposes. First, it shows the relation of the two Chimu styles to be one of purity for the earlier, and mixedness for the later, at least with reference to the coast of Peru. Proto-Chimu may prove to have absorbed influences of Andean styles or from north of Peru; it is devoid of any direct influences emanating from Nazca or elsewhere in the coast regions to the south. Late Chimu, however, almost certainly contains a Nazca and a Coast Tiahuanacoid strain besides its Inca elements. Since these Nazcoid-Tiahuanacoid elements (double-spout, head-and-spout) appear in Pre-Inca associations on the central coast, they were probably accepted from that area by the Chimu before specific Inca elements (aryballus) reached the northern coast. After the absorption of the Inca strain, the final composite Late Chimu style flooded back southward for almost the length of Peru, and seems also to have flowed northward to the limits of the country.

Secondly, our analysis defines the Proto and Late Chimu styles, so that other styles found in the area may be placed in relation to them, typologically and therefore, hypothetically at least, chronologically, in the discussions of these styles that follow.

The third point is theoretical. WISSLER[1] has recently discussed the distribution of several of the above shapes the world over. He finds the double jar (twin vase), double-spout (twin spouts), and stirrup-mouth (ring neck) occurring in Peru and Ecuador, southern Mexico, the Pueblo area, the Mississippi Valley, Africa, and nowhere else. In each case the distribution is such as to suggest a development of the three shapes in the order named. A bottle-neck jar or bottle vase is also found in these five areas, as well as in several others; from which Wissler concludes that it preceded the three other shapes, the partial or complete sequence of the four forms in the several separate areas representing as many parallel, independent inventions springing from a common basis or "plateau" of pottery, possibly under the stimulus of gourd forms.

If the relative ages of Peruvian cultures were known with certainty, Wissler's reconstruction could be put to the final archæological test. However, as both Uhle and Tello make Proto-Nazca (Pre-Nazca) earlier than Proto-Chimu, we may assume this relation. It follows then:—

(1) The stirrup-mouth (Wissler's stage 4) is absolutely later than the double-spout (stage 3), but originated in an area in which at the time the double-spout was not known, or at least not in use. Conversely, the double-spout (3)

[1] The Relations of Nature to Man in Aboriginal America, 1926, pp. 67-76.

became decadent in the area of its invention without the stirrup-mouth (4) being invented there, or even introduced except sporadically.

(2) The double jar (2) is found concurrently with the stirrup-mouth (4) in the district of the latter's invention. As our backward perspective cuts off suddenly with Proto-Chimu, we cannot be certain as to the original time relation of the two forms. But as the stirrup-mouth is much more abundant than the double jar when the Proto-Chimu record opens, the indication is against its having been developed later. In the south, the double-jar (2) was lacking when the Nazca double-spout (3) originated, and was only introduced and sporadically used much later.

(3) The bottle-neck jar (1) was absent in the south when the double-spout (3) came into use there. It was present in the north when the double jar (2) and stirrup-mouth (4) are first encountered there only if the long-spouted quadrant-handled Proto-Chimu jar[1] be reckoned as a "bottle vase."

While in a loose sort of way the Peruvian data parallel those from other parts of the world rather astonishingly, and the recognition of this by Wissler is surely significant, it seems from the foregoing that his schematic reconstruction of a sequence of forms does not hold in detail for Peru. Of course, our data are far from complete, and it may be that knowledge of the antecedents of the so-called Proto-Chimu and Proto-Nazca styles would revindicate the hypothetical scheme.[2] If these cultures had been imported more or less bodily into Peru, Wissler's conjectured sequence might be better confirmed, though at the loss of his inference of independent development in South America.[3]

PROTO-CHIMU Plates I, II

The touchstone for the Proto-Chimu style is the collection excavated at the Huaca de la Luna at Moche by Uhle for the University of California, since this is the only described series with grave proveniences and other data.[4]

The only specimens to be added here from the Field Museum collections are the splendid stirrup-mouth portrait head shown in Plate I, which is from the Zavaleta collection from Chimbote; the portrait-head jar in Plate II, Fig. 6, also from Chimbote and the Zavaleta collection; and the five stirrup-mouths (Plate II, Figs. 1-5) which are part of the Jacobs collection secured by myself for the Museum and which are attributed to Viru, the valley next south to that of Trujillo. Three of these five vessels (Plate II, Figs. 1-3) approach what I consider Middle Chimu manner. The one in Plate II, Fig. 1, is unpainted reddish buff; 2 is red, white, and black (brown); 5 is red and white. Those in Plate II, Figs. 3-4, are indubitably Proto-Chimu, and so are five other pieces of Jacobs from Viru, not here illustrated. An eleventh vessel attributed to Viru is, however, clear

[1] Shape 8 of KROEBER, Moche, p. 201.

[2] Tello derives both Nazca and Proto-Chimu from an Archaic Andean culture; but this culture is not known to contain any of the four shapes discussed by Wissler. The nearest resemblance is a sort of rude, bridgeless head-and-spout (Introducción, Plate IV).

[3] Uhle has for some time argued for a Mayoid origin of Peruvian cultures, and lately has been inclined to connect the ancient Mississippi valley culture with both.

[4] KROEBER, Moche, 199-204, 216-221, Plates 53-59, 67a-e.

Late Chimu: a small, poorly made cat figure with a monkey modeled on the handle.

A comparison of Proto and Late Chimu vessel-shapes shows about an equal number of forms confined to Proto-Chimu, confined to Late Chimu, and common to both. The Proto-Chimu occurrences and frequencies in the appended tabulation are condensed from those previously published on the Uhle collection. Since this series consists of nearly six hundred vessels and comprises all the objects found in a number of pure Proto-Chimu tombs, the frequencies can be assumed as fairly representative. As there is no corresponding, unselected series of Late Chimu ware available, only occurrence and absence can be indicated for this style, although the relative frequency of the more ornamental forms can be approximately estimated, as discussed below in the description of the Late Chimu pottery secured.

Proto-Chimu and Late Chimu Shape Frequencies[1]

Shape	Description	Pr-Ch	Late Ch
9-15	Stirrup-mouth	42	xx
8	Long-spouted jar, tubular quadrant handle	4	—
(14)	Double jar	(0.3)	x
	Double-spout	—	x
	Head-and-spout	—	x
	Figure-and-spout	—	x
5	Constricted-mouth dipper with tubular handle	2	—
3	Concavely flaring bowl, flat-bottomed	9	—
2	Globular bowl with lid	1	—
2	Globular bowl without lid	(?)	x
1	Pot with lip, no handles	4	x
	Pot with lip, handles	—	x
6, 7	Jar, abrupt flaring mouth, no handles	38	x
	Jar, one flat handle	—	x
	Jar, long tapering spout	—	x
	Aryballus	—	x
	Goblet, quero-shaped	—	x
4,16	Other forms	(0.5)	x
		100	

The outstanding fact derivable from this summary is that there is no Nazca, Nazcoid, Tiahuanacoid, or Inca influence in Proto-Chimu, a conclusion confirmed by examination of design.[2] Proto-Chimu may be later than the first developed style of Nazca or even of Tiahuanaco, but was independent of them, whereas Late Chimu has incorporated elements from both.

On the other hand, Proto-Chimu shows certain affinities with ancient styles of the northern Sierra, and these affinities appear to have died out by Late-Chimu time. Thus the constricted-mouth dipper or drinking vessel with cylindrical handle (shape 5) appears in the North Andean Archaic of Tello.[3] The concavely

[1] The Proto-Chimu shape numbers are designated as in Kroeber, Moche, p. 201. Under Late Chimu, a cross denotes occurrence; a dash, absence.

[2] Proto-Chimu shares certain design motives, such as the step-fret, with other Peruvian styles, but as these motives are virtually pan-Peruvian, they cannot, in our present knowledge, be used to establish stylistic derivations or influences.

[3] Introducción, Plate IIIa.

flaring bowl (shape 3) somehow impresses as having relations in the same direction. Figure-modeled jars in the old North Andean[1] may be related to Proto-Chimu jars and stirrup-mouth bodies. A North Andean quasi-double jar[2] is possibly to be connected with the double jar occasionally appearing in Proto-Chimu as well as with the later head-and-spout form.

This is not an imposing array of resemblances, but it does yield some indication of partial sources for the Proto-Chimu style, which otherwise seems to srping into existence out of nothing.

The Chavin, Cursive, and Recuoid style pieces from the Chimu coast land, discussed below, also have definite affiliations to the northern interior. As to the place of these styles in the sequential development of culture along the coast, it will be seen that the Cursive and Recuoid styles contain shapes like the figure-and-spout which do appear in Late, but not in Proto-Chimu; so that these two styles are indicated as post-Proto-Chimu. The Chavin style, on the other hand, is known from stirrup-mouths and not in shapes with a bridge; so that its temporal as well as typological relations are likely to be closer with Proto-Chimu.

MIDDLE CHIMU

There is nothing in the collections obtained or previously in Field Museum that throws new light on the hypothetical Middle Chimu, and this style must continue to be accepted only provisionally. The brownish double jar from Chanchan shown in Plate VI, Fig. 8, approaches what I conceive to be Middle Chimu modeling; and so perhaps do the three stirrup-mouths from Viru already mentioned (Plate II, Figs. 1-3).

LATE CHIMU BLACKWARE Plates VII-X

Late Chimu pottery is prevailingly black, but not exclusively so; just as Proto-Chimu is overwhelmingly red and white, but includes a small proportion of smoked blackware. On the basis of the Uhle and other collections, the frequency of black vessels in Proto-Chimu is about 3 per cent, in Late Chimu about 80. If all vessels made were considered instead of those deposited in graves, the Late Chimu frequency would probably be somewhat reduced from 80 per cent, since purely utilitarian pieces tend to run to untreated red, as already mentioned. The indicated history of Peruvian blackware from its Proto-Chimu or highland beginnings has been reviewed elsewhere.[3]

Late Chimu blackware constitutes the great bulk of the pottery recovered from the Chanchan cemeteries. Dr. Uhle was unquestionably right in so pronouncing,[4] and my hesitating qualification,[5] based on the collections of the American Museum of Natural History, is groundless. It is true that there is a

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[1] *Ibid.*, Plate Va.
[2] *Ibid.*, Plate IVa.
[3] KROEBER, Supe, pp. 251-253.
[4] UHLE, Ruinen.
[5] KROEBER, Moche, p. 193, note 5.

considerable proportion of Proto-Chimu ware in the Bandelier collection from Chanchan in that Museum. Possibly Bandelier discovered a Proto-Chimu site at Chanchan which has not been recognized by others. It is more likely, however, that his principal work in the valley having been done at Chanchan, everything that he acquired from the Trujillo region came to be catalogued simply as from Chanchan. In any event, the history of his collections will have to be known in more detail before they can be used as evidence in problems of type and period.

It has already been mentioned that inspection of the cemeteries reveals types, like the steep-walled plate-bowls (Fig. 1), that do not often enter into collections. The Late Chimu collection excavated by Uhle at Moche site B,[1] although smaller and less fine in quality than his Proto-Chimu collection, has value in determining the occurrence in Late Chimu of utilitarian forms that are not often collected.

As to the more decorative pieces, a collection seen at Mansiche may help. This place lies on the way from Chanchan to Trujillo, so that the owner of the collection, having first access to the huaqueros on their way to town, presumably derived all his specimens from Chanchan. All but two or three of a hundred

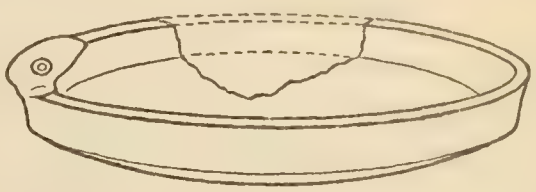

Fig. 1.
Late Chimu Blackware Plate Bowl from Chanchan.

vessels were black; one was red-white-black Recuoid. Of the 100 black vessels, 50 were stirrup-mouths; 6, double spouts; 12, bridged double jars and figure or head-and-spouts; the remainder were mostly handled and unhandled jars.

The collection secured for the Museum from Sr. Jacobs is also pre-selected in that it contains no utilitarian or plain pieces; but, with this reservation in mind, it is worth analyzing. Besides 5 black figurines, it contains, after deduction of specimens remaining in Peru, 115 blackware vessels specifically attributed to Chanchan and all obviously of Late Chimu type. These classify into primary types as follows (Fig. 2):—

Stirrup-mouth	64
Double-spout	4
Head-and-spout	6
Figure-and-spout	7
Double jars with bridge	12
Jars with one flat handle	8
Jars without handle	12
Special types FV, RFJ	2
Aryballus	0
	115

[1] *Ibid.*, 204-205, 207, Plate 60, 61, 62e, f.

In percentages, stirrup-mouths, 56; bridged forms, 25; jars, 17; special shapes, 2. These frequencies are fairly similar to those of the Mansiche collection. The Uhle blackware collection from Moche site B included only 3 stirrup-mouths, 1 double-spout, 2 double jars, and 2 aryballuses in a total of 59 pieces. This proportion suggests that the Jacobs and Mansiche collections each represent a cull from a total of 500 to 1000 blackware vessels actually encountered by the huaqueros; cookpots, plates, plain jars, and broken specimens having been rejected.

The 64 black stirrup-mouth vessels comprise 9 having a human figure as body, 17 animals, 11 fruits, 13 simple spheroid or lenticular bodies, 14 similar bodies with relief ornament.

In 55 the stirrup is symmetrical; in 9 it springs from the back instead of the top of the body of the vessel, so that the mouth divides the stirrup into two seg-

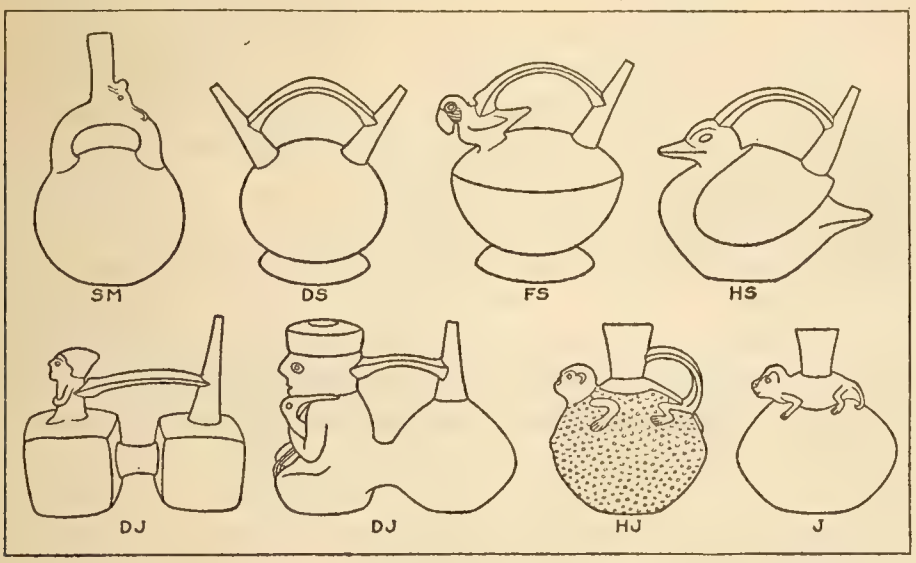

Fig. 2.

Shapes Occuring in Late Chimu and Other Styles. SM, Stirrup-mouth; DS, Double-spout; FS, Figure and Spout; HS, Head and Spout; DJ, Double Jar; HJ, Handled Jar; J, Jar without Handle.

ments of unequal length. The latter is also a Proto-Chimu device.[1] Of the 9, 7 are human figures, 1 a pair of monkeys, 1 an animal, perhaps a dog.

Unless the body is circular, the plane of the stirrup is usually longitudinal, or in case of human or animal figures, in line with the fore-and-aft axis. There are definite exceptions: 1 pair of birds, 3 eels, 1 fruit, 2 (out of 4) gourds with stem, 1 (of 2) prone men. The 3 eels are somewhat difficult to assign because their body curves; the stirrup is in line with the middle of the body, but transverse to the head. The transverse stirrup is not found or is quite rare in Proto-Chimu: it does not occur in the Uhle collection from Moche sites E and F. The fact that both gourds and prone men in the Jacobs collection have the stirrup longitudinal as well as transverse, indicates stylistic instability, a more or less conscious experimenting, such as is characteristic of Late Chimu. Proto-Chimu developed

[1] Shape 13 vs. 9-12: KROEBER, Moche, p. 202.

new subjects and original motives, and adhered to them. Late Chimu was more given to reshuffling and recombining of old elements.

Two of the 64 stirrup-mouth vessels have lost their stirrups. Of the 62 remaining, 47 have one small climbing or rampant monkey, where the mouth rises from the stirrup; 1 has the monkey half-way up the stirrup, and 2 at the base. In 4 others there is a small figure at the foot of the mouth: twice indistinguishable, once a bird, once a step. Eight stirrups are plain, like Proto-Chimu ones. The frequency of ornamented and plain stirrups seems to be about the same in the several shapes of bodies.

Other non-Proto-Chimu traits occurring in Late Chimu are flaring mouths, flattened sides of stirrup, and relief on the stirrup. A flaring mouth appears on 4 of the 62. A flaring mouth is also usual on the handleless jars in the collection. It is also an Inca characteristic, and occurs in much late ware to as far south as Nazca.

A greater or less flattening or squaring of the stirrup occurs on about half the Late Chimu jars. Its frequency, compared with cylindrical stirrup, is; men, 0-8; animals, 5-11; fruits, 7-4; plain, 7-6; relief, 10-4; total, 29-33. The lower frequency of squaring on men and animal forms is expectable, because the emphasis of the modeling in these is on the body.

Relief on the side of the squared stirrup appears in 3 fruits, 4 plain vessels, 2 relief-ornamented.

The joint of mouth with stirrup is wedge-shaped (the mouth penetrating the cylinder in appearance) 28 times, horizontally transverse 34 times.

The 17 animal stirrup-mouths classify as follows: felines (?), 4; dogs (?), 2; pair of monkeys, 1; pair of birds, 1; water birds, 2; frog, 1; eels, 3; shark, 1; balloon fish, 1; shrimp, 1. The last four seem characteristic of Late as opposed to Proto-Chimu.

Of the double-spout vessels, 3 are plain, 1 has relief. All 4 have a foot, tapering and spreading spouts of considerable length, and a humped bridge. In 3 cases the bridge is flat, in 1 cylindrical.

Other "bridged" vessels represent either men or animals, as follows: double jars, 7-5; figure-and-spout, 3-4; head-and-spout, 0-6.

The double jars classify as follows: both bodies flattened, 4; both globular, 6; both cubical, 1; one cubical, one flattened, 1. In 8 the front body is modeled into a man or animal: in 4 it bears a human or animal figure.

All bridged specimens have a tapering spout except 3 double jars. In all the bridge is flat, unornamented, and humped; but the degree of arching is quite variable. In types DS, FS, and usually HS, the spout "spreads" or tilts; in the double jars it mostly stands nearly vertical. Relief ornament occurs on the 1 cubical-flattened and the 4 flattened bodies of double jars; and on 2 figure-and-spouts.

The stirrup-mouth and bridged vessels include 19 of a human figure, to which can be added 3 on jars. As regards body posture and ornament, these show the following frequencies:—

	Stirrup SM	Bridge DJ, FS, J
Legs		
Crossed	5	3
Knees up	2	1
Not clear	—	4
Standing or lying	2	3
Hands		
On stomach or breast	2	2
On thigh or lap	3	2
To mouth	2	—
Holding an object	1	4
Not classifiable	2	3
Head-dress		
Conical or flat round-topped	6	1
Semi-lunar	1	2
Two-horned	—	4
Low cylinder	2	4
Ears		
Plugs	2	3
Unornamented	4	2
Veiled	3	3
Not clear	—	3

These frequencies are closer to the Proto-Chimu frequencies for posture and ornament than were the Late Chimu indications previously available.[1] They suggest that many quite specific Chimu customs did not greatly change during the periods known.

The dozen unhandled jars all have flaring mouths, and are all modeled. They include: 5 carnivores, 2 men, 1 recumbent Pan's pipe player, 1 balsa with two men, 1 row of seals, 1 pelican, 1 fish—suggestive of the usual Chimu range of subjects. Two of the jars also bear relief decoration.

The jars with a flat or ribbon handle are less extensively modeled, and about half the time have the mouth or spout cylindrical or even slightly tapering instead of flaring.

"Goose-flesh" relief stippling occurs on: stirrup-mouths, 6; double-spout, 1; bridge-and-spout, 7; handleless jars, 2; handled jars, 4; total 20. The frequency would perhaps be higher on plain ware and cook pots.

There is one example each in the Jacobs Chanchan blackware collection of two special types that appear to have a fairly wide occurrence in Peru, but whose origin and relations are not known.

The "face vase," FV (Plate IX, Fig. 5) is represented in several museums and published works.[2] The features, modeling, and flaring opening suggest a late period. The retracted lips and the "plaiting" of the hair seem uncharacteristic of any known coast style, and suggest a highland origin for the type.

[1] KROEBER, Moche, pp. 219-220.

[2] LEHMANN, Plate 88 (Cajamarca); FUHRMANN, Plate 47; PUTNAM, Plate 19, Figs. 26 (Ferreñafe), 27; SELER, Plates 28, 29, Figs. 3-6; KROEBER, Moche, Plate 68e (Chepen).

The "rotund figure jar," RFJ (Plate IX, Fig. 4) is another specific shape which is well recognized.[1] It occurs always in polished black, with globular belly, a spout which begins as a human face and ends in a taper, and with a pair of serrated projections rising from the top of the belly so as to flank the face. In the present specimen,[2] the projections are prone human figures stretching their hands toward the central face. In other instances cats replace the human figures; the effect almost always suggests upraised hands; but I have not found a specimen in which hands are actually represented. The spout with its face and especially the cut of the ears in this type are similar to the Tiahuanacoid vessels found by Uhle at Moche site A.[3] The known distribution of the type is on the coast from Lambayeque to Ancon. Until further data accumulate, I should be inclined to construe the type as one of pre-Late Chimu origin persisting to a Late period.

LATE CHIMU COLORED WARE Plate VI

A few Chanchan pieces in the Jacobs collection serve to show the substantial identity of Late Chimu colored ware and blackware.

Plate VI, Fig. 5. Jar in shape of seated woman with conical cap. Red of Proto-Chimu quality; with red painted pattern of continuous scroll and striped triangles (Plate XIII, Fig. 5).

Plate VI, Fig. 6. Red stirrup-mouth, with a little purplish black painting. Upward: a foot, globular belly, bird, man prone on the bird, plain stirrup. The general design is similar to that of a black piece in the collection.

Plate VI, Fig. 7. Whistling figure-and-spout jar on footed, lenticular body; seated man. Reddish pink, with thin black scroll, stripe and dot pattern somewhat Cursive in manner. This design is shown in Plate XIII, Fig. 6.

Plate VI, Fig. 8. Double whistling jar: front, bird; rear, spondylus shell and spout; bridge flat. Buff red, with stripes and rows of bars in thin black. The modeling of the bird suggests that of the condor in Baessler's Plate 54, Fig. 228, which has been cited as perhaps representative of a Middle Chimu style, but is stiffer.[4]

No. 169951. Gray stirrup-mouth of monkey seated on a cubical body. The stirrup bears the typical Late Chimu small monkey at the joint. There is a little black painting in pale and poorly drawn lines.

LATE CHIMU FROM BEACH MOUNDS Plates VI, XIII

Seven vessels in his collection were stated by Sr. Jacobs to have been taken from the small, sandy burial mounds lying between the beach and the main

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[1] Uhle, Pachacamac, Plate 8, Fig. 10 (Lambayeque); Kroeber, Moche, Plates 67h (Pacasmayo), 68d (Chepen); Seler, Plates 28, Fig. 10 (Trujillo), 31, Fig. 4 (Gran Chimu, Chanchan), 11, Fig. 1 (Ancon,) 31, Fig. 3 (Cuzco?), 28, Fig. 11, 29, Fig. 12; Putnam, Plate 24, Figs. 1-5; Hrdlicka, Plate IV, Fig. 1 (Chicama).

[2] The finder or a subsequent owner, as Sr. Jacobs pointed out, has mended the specimen and added a second head, of Late Chimu type, at the rear of the body of the jar, to make it more interesting. Such frauds of genuine parts can occasionally be met with.

[3] Kroeber, Moche, Plates 64a, 65b.

[4] Kroeber, Moche, p. 223.

cemeteries of Chanchan. The majority are Late Chimu; one or two may be Proto-Chimu; none shows serious influencing by other styles. It thus seems that these beach burials belong culturally with those of Chanchan generally.

The following are certainly Late:—

Plate VI, Fig. 2. Blackware jar in figure of an erect man, the top of his head open; he holds a spondylus shell before his breast. The face is bordered by a braid or seam of a head-cloth. The mouth grins and reveals the teeth; at each corner are two well-marked curved creases.

Plate VI, Fig. 3. Blackware figure-and-spout with brick-shaped body. The seated figure wears a large, vertical, nearly quadrangular head-dress; holds a box-like object; and stretches its legs. The flat sides of the body of the vessel bear pressed relief, shown in Plate XIII, Fig. 4.

Plate XIII, Fig. 2. Unpainted gourd-jar with curved, closed neck and stem, vertical spout, and flat, arching handle. Light brown ware, highly polished and well modeled.

Plate XIII, Fig. 3. Unpainted double-spout; body heart-shaped; a small panel on each of two sides carries a cat figure in relief. The spouts and bridge are of Late type. The ware is light buff.

No. 169914. Three-color stirrup-mouth, in shape of a seated dog, conventionally modeled. The spout flares at the mouth and bears no monkey. The colors are whitish gray, purplish red, and a little pale black.

The following may be earlier:—

Plate VI, Fig. 1. Blackware, stirrup-mouth, seated man. The finish is hard and suggests an example of the occasional Proto-Chimu blackware.

Plate VI, Fig. 4. Stirrup-mouth, seated man, or dressed monkey. One knee is folded under, one up with the hands clasped on it. Reddish brown, with a few stripes of darker brown.

TIAHUANACOID STYLES

Tiahuanaco-influenced ware has been reported in the Trujillo region only from the two platforms at the foot of the top pyramid of the Huaca del Sol at Moche, as discussed above. The pottery found by Uhle on the southern of these platforms (site A) has been described by him,[1] and reanalyzed and refigured by myself.[2] The surface sherds which I found on the northern platform include several red fragments like those in Plate 65 h, i of my Moche monograph.

Like Uhle, I found some pure Proto-Chimu sherds among the Tiahuanacoid fragments on the platform; but not many.

The nearest affiliations yet known for the Moche Tiahuanacoid ware are in the Middle Period pottery excavated by Uhle at Supe, on the coast between Trujillo and Lima, but considerably nearer the latter and therefore in central Peru. A detailed comparison makes this relation clear. The references are to plates in my previously cited Moche and Supe monographs descriptive of the Uhle collections.

[1] UHLE, Ruinen.

[2] KROEBER, Moche, Plates 63-66.

Goblets in relatively pure Tiahuanaco style: Moche, 63b-d; Supe, 73b, c, e, g, 77 l, m.

Goblets in impure Tiahuanaco or Epigonal style: Moche, 63a, 64 l; Supe 73f, h, i, 77n, o.

Bowls of goblet type: Moche, 63e, Supe, 73d; cf. also design on jar 72d.

Jars with "scenes" impressed with moulds: Moche, 64b-d, 65a, b; Supe, 71c, d, 75c-e, 78b, o.

Man-shaped jars: Moche, 64e, f, 66a-c; Supe, 71b, 72b, c.

Same with scalloped edge: Moche, 64h; Supe, 78j.

Round-headed dolls or figurines: Moche, 64g; Supe, 76a-c.

Painted bowls with foot: Moche, 66h; Supe, 73k-o, 78k; without foot, Supe, 78d, f.

Pressed bowls: Moche, with foot, 65f-i; Supe, without foot, 75g-k, 78e, n.

Pressed pots: Moche, 65j; Supe, 76 l.

Modeled cat heads: Moche, 66d, e; Supe, 77a-g.

Black on white painting, somewhat cursive: Moche, 66d, f, g; Supe, 77g.

That Middle Supe contains certain forms not found in Moche Tiahuanacoid —double-spouts, bird-shaped head-and-spouts, Chimu figure modeling—does not impair the significance of the resemblances, especially in view of the distance separating the two localities. Moreover the Moche recoveries are few and mostly fragmentary. Had we three hundred whole vessels of Moche Tiahuanacoid as of Middle Supe, it may be suspected that some of the missing forms would turn up.

As Middle Supe allies closely with Middle Ancon,[1] and this with the "Tiahuanaco and Epigonal" of Pachacamac,[2] the scanty remains of the Moche style under consideration have definite relations for a long distance southward on the coast. Nothing in the same style has been reported from north of Trujillo; and the sparseness of its representation among the thousands of specimens taken out of the ground in the Trujillo area is in itself notable. Evidently this Central Coast Tiahuanacoid style reached the Chimu area only as a temporary intrusion; like the Red-white-black geometric discussed below.

In line with this conclusion is the fact that so far as can be judged from the scanty remains, the Moche Tiahuanacoid ware is unassociated with any Chimu ware. The accompanying Proto-Chimu evidences are only small scattered sherds; and as for Late Chimu, the Tiahuanacoid pieces include a few that have some resemblance to certain Late Chimu types, especially jars, but all the most characteristic Late Chimu traits are lacking. Similarly, Middle Supe, while it contains an indubitable Chimu strain, has worked this over and eliminated some of the most typical features: modeled figures in Proto-Chimu attitudes, for instance, but with an ordinary jar-mouth instead of stirrup.[3] In fact, Moche Tiahuanacoid, Middle Supe, and Middle Ancon are all without stirrup-mouths, this most char-

[1] Strong, Univ. Calf. Publ. Am. Arch. and Ethn., Vol. XXI, Plates 44-47.

[2] Uhle, Pachacamac, Plates 4-5.

[3] Kroeber, Supe, Plate 71f.

acteristic shape evidently having penetrated the central coast only at a late Period, when Late Chimu and Inca mixtures spread widely in Peru.

Incidentally, the areally limited influence of Proto-Chimu is revealed by this absence of early stirrup-mouths in the south, and contrasts with the aesthetic energy of the style. The Proto-Chimu culture seems to have been as concentrated geographically as it was intense and creative.

By contrast, Late Chimu is an eclectic combination of elements inherited from Proto-Chimu and taken over from southern and perhaps other sources, even Cuzco style elements coming to be admitted; original features are as good as lacking; but the geographical diffusion is great.

That the Tiahuanacoid style at Moche falls between Proto and Late Chimu in time, as Uhle concluded, there is no reason to doubt, in view of the foregoing. Whether it caused or marked an interruption of Chimu style and culture, or represents an intrusion that coexisted with a continuing Chimu, remains to be ascertained.

THREE-COLOR GEOMETRIC STYLE Plate XIII

A Three-color or Red-white-black geometric style occurs at Pachacamac Lima, Ancon, and Chancay.[1] It has certain similarities to the Three-color Textile style farther south (Late Chincha and Ica), with which it is probably more or less connected and contemporary. It has not been reported north of Chancay except for three jars excavated by Uhle at Moche site C below Late Chimu graves.[2] These three Moche pieces are painted in somewhat more rounded and hasty lines than typical Three-color pieces from central Peru, and suggest influencing by the cursive style.[3]

Field Museum possesses one jar in this manner attributed to Chimbote (Plate XIII, Fig. 1). This was acquired as part of the World's Columbian Exposition collections by G. A. Dorsey. It has a pronounced foot, a tapering mouth, and a handle. The shape is not like any known vessel-shape in the Three-color geometric manner; but the painted design shows kinship, as does the coloring.

CURSIVE TRIPOD STYLE Plates V, XI

The only Cursive Tripod style specimens with data are fragments found by Uhle on the Huaca del Sol platform A at Moche in association with Tiahuanacoid material. The painting on these sherds is markedly cursive and without attempt at realism.[4] Sr. Jijón y Caamaño pronounces them related to the Tuncahuan style of Ecuador.

Two tripod bowls in the Peabody Museum from Viru or Chicama[5] have a more Peruvian aspect, especially one with square faces painted in more or less "Epigonal" manner. On the other hand, these faces show a wide, grinning

[1] See the description and review in KROEBER, Chancay.

[2] KROEBER, Moche, Plate 62a-d.

[3] In a recent letter Dr. Uhle suggests an earlier origin for the Moche Three-color style than he has hitherto assumed: perhaps pre-Tiahuanaco; and suspects influences from north of Peru.

[4] KROEBER, Moche, pp. 212-213, Plate 63f-p.

[5] KROEBER, Moche, Plate 69a, b.

mouth with teeth, which is a Tuncahuan feature, and occurs also in pottery taken from underground tombs in the Callejon de Huaylas (upper Santa River) and elsewhere in the northern interior of Peru by Tello and named by him North Andean Archaic. This ware contains a notable admixture of tripod bowls.[1] A. HRDLICKA[2] has also published illustrations of two bowls from Chicama, one tripod and the other pedestalled. The painting on neither is cursive; of both has definite North Andean affiliations; and one has certain "Epigonal" or Tiahuanacoid suggestions.

I saw and secured at Trujillo only one three-legged bowl, which is shown in Plate V, Fig. 5. The provenience is undetermined. The painting on the inside of the bowl (Plate XI, Fig. 4) is not very distinctive, and scarcely Cursive in manner.

Another indication that the Cursive Tripod style represents a highland influence on the Chimu coast is furnished by a sherd from Huamachuco at the University of California (Plate XI, Fig. 6). The painting on this—hasty black on light buff—the form of the motives, their disposition, the texture of the ware, and the suggested shape of the vessel, all agree with the Moche site A Cursive fragments.

The Ecuadorean, Colombian, and Central American distribution of tripod bowls is well-known. Three-legged (or four-legged) vessels have been found in a number of areas in Peru, but are always rare, except perhaps in the northern interior. More data on the Cusive Tripod style therefore promise to illuminate problems wider than purely Peruvian ones. For the Chimu coast area, the association with Tiahuanacoid at Moche site A places the Cursive Tripod style intrusion or influence as probably between Proto and Late Chimu.

CURSIVE MODELED STYLE Plates III, IV, XI

Modeled vessels cursively painted are represented by half a dozen vessels in the Jacobs collection (Plates III, IV); several in the Museo de Arqueología Peruana; and a double jar figured by BAESSLER.[3] These vessels are all bridged, whistling jars of shapes DJ, FS, HS. The modeled figures on them tend to be small, modeled with some detail, and are usually placed on double or multiple cubical or cylindrical base vessels. There are no stirrup mouths or double spouts. The ware is of a dull or reddish buff color, rather fine-grained, soft, and fragile; smooth, but except in one case not lustrous. It is painted decoratively rather than with reference to the modeling, in thin, red, and blackish lines which recall the cursive style of the tripod bowls. On the other hand, the modeling carries a suggestion of the style of "Recuay" (Catac) in the smallness, stiffness, and grouping of the figures.[4]

The lot secured is from the Chanchan cemeteries. According to Sr. Jacobs, they are all from the lowest levels, in some cases from the fifth burial reckoning downward. One encounters much loose talk in Peru about stratifications, generally impossible to verify; but Sr. Jacobs is intelligent and usually exact in his

[1] TELLO, Introducción, Plate IIIB.
[2] Smithsonian Misc. Coll., Vol. LVI, No. 16, 1911, Plate 1.
[3] Vol. IV, Plate 156. There is resemblance also to the Red-white-black Recuoid manner discussed below.
[4] Most fully illustrated in SELER, Altertûmer, Plates 42-47. See also TELLO, Introducción, Plate VB.

statements, and visited the cemeteries often enough to be not wholly dependent on the statements of huaqueros, who mostly lie without hesitation if it will enhance the price of their wares. There is thus possibility that this modeled cursive ware represents a distinctive horizon as well as style.

Of the seven pieces secured (Plates III, IV) all are modeled whistling jars with a flat and somewhat humped bridge, and a single long, tapering spout painted with a few, thin horizontal red stripes. The larger surfaces of the vessels, both flat and curved, are not true planes, but wobble. The modeling goes into some detail, and is neat, but the figures are clumsy. Hands and feet with one exception show five digits made by four incisions. The eye is indicated by a raised oval band, within which is a smaller raised oval. Noses are prominent; mouths wide, but thin; in three cases out of five faces show definite creases between cheeks and mouth, from the nostrils down. Painted designs are chiefly in black, whose application was thin and rapid, the narrow lines flowing. Red is used much less, perhaps because the ware itself is often reddish. The red mostly forms stripes or edges, or comes on faces or other areas accentuating the modeling. The black pattern tends to follow the red stripings. One vessel of the seven lacks black; all the others have both red and black on the buff background. The designs are not very unlike Proto-Chimu painted ones in their motives or even like those pressed in relief on Late Chimu ones, but are more massed. Also, since the bands of design in the area tend to be different, the effect of the cursive painting is more complex. The painting on three of the vessels is shown in Plate XI, Figs. 1-3.[1] The resemblance to Cursive Tripod designs is chiefly in the rapid stroking; in the specific forms painted, Cursive Modeled and Cursive Tripod are not specially alike. Nor is there particular resemblance to the intricate and often "negative" painting which most vessels in the advanced "Recuay" style bear. The effect of the designs as drawn out in Plate XI is somewhat textile-like, and perhaps even more reminiscent of wood carving; but as seen on the pottery itself, the designs carry no suggestion but that of rapid, trained, somewhat hasty brushwork.

The detailed descriptions of the vessels follow:—

Plates III, XI, Figs. 2–2a. Creamy buff; red stripes and faces; brownish black pattern in thin lines. Body brick-shaped; three figures face one end, the spout is near the other end. The figures are of men, their hands joined in front of their bodies; the middle one is the largest and wears a hat in the form of three superimposed and successively smaller disks; the two side figures wear conical caps.

Plate IV, Fig. 1. Colors as in Plate III, except the black is pale, and its lines tend to be either straight or hooked. The body of the vessel represents a boat-shaped rush raft or balsa. This is set on a foot or pedestal. From the balsa rises a small human figure; farther aft, a spout connected with the figure by the usual

[1] Plate XI, Fig. 1 from side of brick-shaped base, 1a from front and 1b from rear of upper side of base, of vessel shown in Plate IV, Fig. 2; Plate XI, Fig. 2 from side of base, 2a from ends and top of base of Plate III; Plate XI, Fig. 3 from end, 3a and 3b from side of cylinder of Plate IV, Fig. 3 (3a and 3b are continuous, the lowest red stripe of 3a being also the top stripe of 3b).

"bridge"; a second human figure clings to the stern. The spout tapers less than in the other specimens of this group, and is of thicker ware. Under the bridge, seven fishes and perhaps birds are indicated in relief—they are the catch of the pair of navigators. Both of these wear conical caps, somewhat convex toward the front. Their eyes and chin areas are painted black; their hands are four-fingered. This specimen is aberrant from the type of the preceding in some details.

Plates IV, Fig. 2; XI, Figs. 1–1b. The buff ground is yellowish; dark red appears in stripes and in masses on the dress of the figure; the black is pale and applied in thin, flowing lines. The body of the vessel consists of two approximate cubes, one bearing the figure, the other the spout. The figure is that of a man seated with his knees up, his hands on his knees under a cape or poncho; at his back are what look like a cushion and the back of a seat or throne. His cap is a low cylinder; he wears large ear-disks.

Plates IV, Fig. 3; XI, Figs. 3–3b. Ground, reddish buff; stripes, dark red; designs, grayish black. Body of vessel, two lying cylinders; a figure stands on one, the spout rises from the other. The figure is that of a standing man, with a cylindrical cap from which a cloth falls over the back of his neck. The right hand is at the shoulder; the left, at the hip. The face is painted red.

Plate IV, Fig. 4. Ground, reddish buff; red, dark, in stripes, or as masses on face or belly of the figure; black, brownish, applied in rather broad cursive strokes. The body of the vessel is complicated, consisting of eight more or less globular chambers. These are disposed in four pairs: each pair has a somewhat conical chamber on top of a nearly spherical one; the lower of each pair is connected with the adjacent ones by a tube. On one of the pairs is the figure, on the opposite one the spout; the bridge between the two therefore diagonally bisects the square formed by the pairs of globular chambers. The figure is that of a man on a seat, his hands on his knees; he wears a conical cap.

Plate IV, Fig. 5. This is the crudest and most divergent piece in the group. The form is that of a dog or other quadruped. The spout rises from the animal's back, but the bridge leads to the head, and not to a superimposed small figure as in the previous specimens. The ground color is pale buff; legs, head, and back are red; pattern is poorly done in thin black lines. Both modeling and painting are inferior, but the ware is fairly good in quality.

Plate IV, Fig. 6. Yellowish buff, painted with dark red lines; the bird's bill is also red. The body of the vessel is a recumbent quadruped, curled on itself: probably a llama, possibly a dog, and apparently haltered. From it arise the usual figure, bridge, and spout, the figure being that of a large-billed bird. All the modeling is only mediocre.

The affiliations of this style will be discussed in connection with those of the following one.

RED-WHITE-BLACK RECUOID STYLE Plate V

Of a style which I provisionally call Red-white-black Recuoid, there are four examples in the Jacobs collection, all attributed to Chanchan; another was

presented by Mr. Preston Locke; and others were seen. These vessels bear a resemblance to the Cursive Modeled ones in being whistling double or figure-and-spout jars which carry bridges and small figures. The modeling, while less neat than in the Cursive style, is almost equally elaborate and representative in interest; and the painting is much brighter, the red especially being vivid. The painting also tends to conform to the modeling, or to accentuate it, instead of being a separate decorative device applied to the unmodeled surfaces of the vessel.

The white in the Red-white-black Recuoid style tends to be grayish, but is not a reddish or creamy buff like the background of the Cursive style. The red is a dark or impure vermilion, and if unfired would suggest cinnabar pigment having been used. The black is sooty. The prevalent color is red. The black is mostly painted over the red or outlines it. The spouts are red with a black mouth and usually with a few transverse black lines. The spouts taper; the bridges are flat and slightly arched.

Plate V, Fig. 1 is a figure-and-spout jar (type FS, as above). The front half is a globe on which a man sits cross-legged, his hands down. He wears a truncated conical cap; his ears are veiled. The rear half represents a spondylus shell, from which rises the spout. There is a resemblance to the Cursive Modeled piece illustrated by BAESSLER.[1]

The specimen illustrated in Plate V, Fig. 2, is the best in the lot, the white being purer, and both texture and modeling finer. It is a figure-and-spout jar. The brick-shaped body rests on a foot and bears a step or throne. Before this stands a male figure holding a cap and wearing large ear-plugs. Its head-dress is broken. In outline and proportions this vessel is close to the Cursive Modeled ones.

The vessel in Plate V, Fig. 3 is reminiscent of the Cursive Modeled style balsa (Plate IV, Fig. 1), even to being set on a pedestal and having one figure forward on the boat and the second clinging to the stern. But the present jar is a double-spout, transversely set, and the bridge connecting the spouts is not flat, but like a beam on edge, with its top serrated. Both the human figures are roughly modeled. They wear cylindrical caps and large ear-plugs. The forward one kneels. This is the only vessel of the group that does not whistle.

The object in Plate V, Fig. 4 is a figure-and-spout on a lenticular body set on a foot. The figure is a two-headed owl, or perhaps two owls whose bodies are merged.

No. 169945, whose surface is much decayed, is similar in plan to the last. The figure is that of a man sitting cross-legged, holding a cup, and wearing large ear-plugs and a head-dress with two horns or knobs. The white is replaced in this piece by a dark buff.

The affinities of this style are several. The resemblance to Cursive Modeled has already been mentioned. It is intensified by the fact that no stirrup-mouths have been encountered in either style.

A strong fundamental resemblance to Late Chimu is also obvious. If the present vessels had been executed in blackware, they would pass as Late Chimu.

[1] Vol. IV, Plate 156.

There are no specific Proto-Chimu resemblances. The specimen in Plate V, Fig. 1, for instance, could not be Proto-Chimu even if painted differently. The same is true of the object in Plate V, Fig. 3: the double-spout, its transverse setting, the serrated bridge on edge, are florid Late Chimu.

A third resemblance is to a Recuay style. This is not the classical or "A" style of Recuay as represented by the collection from Catac in Berlin,[1] with elaborate linear, often negative painting, groups of figures, and short horizontal spouts emerging from the figures or fronts of the vessels. The resemblance is to another style, "Recuay B," appearing in several specimens in the American Museum of Natural History, the Peabody Museum, and perhaps elsewhere. The Recuay B style is characterized by representative effects in modeling such as of men leading llamas; is detailed, but clumsy in execution; and uses color in combination with modeling rather than as separate ornament. Its colors are red, white, and black, sometimes with and sometimes without yellow; and the red is vivid. The affinities to the present lot from Trujillo are evident and seem to justify the tentative designation Red-white-black Recuoid for the style represented by this lot.

The classic or A style of Recuay, on the other hand, is closer to the Chanchan Cursive Modeled, both in the shapes of its figures and in the lack of integration, logically at least, of its modeling and painting. Both also depart in the shape of the chambers of their vessels from Late Chimu and Red-white-black Recuoid.

These relations suggest Cursive Modeled as earlier and Red-white-black Recuoid as later; especially as TELLO[2] considers Recuay A as old. Red-white-black Recuoid may thus be considered a Late Chimu variant under highland influences.[3]

THE CHAVIN STYLE Plate XII

The Chavin style of north Peruvian coast pottery was so named by Dr. Tello on the basis of a small number of distinctive pieces, mostly now in the Museo de Arqueología Peruana, though a few remain in private hands. I have not seen a complete specimen definitively of this type in the United States. The style has scarcely attracted the attention which its importance merits. I therefore republish in Plate XII drawings from some of Tello's photographic illustrations.[4]

The pottery vessels in this style are all attributed to Chicama, the coast valley next north of Trujillo. The style, however, occurs in its most developed and impressive form in stone sculpture found by Dr. Tello in 1919 at and near Chavín de Huántar, high up in the northern interior east of the Sierra Nevada and west of the upper Marañon. Chavin has yielded two styles of sculpture, which although related should be differentiated.

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[1] SELER, Altertümer, Plates 42-47. The Recuay B style is also affiliated directly or indirectly with the Inca.

[2] Introducción, Plate 5B: Archaic, according to the legend.

[3] Whether Recuay was a focus of these influences or only an incidental point in their distribution is another problem. Recuay lies near the head of the Santa river, at a considerable elevation. The Santa is the longest and probably largest river on the coast of Peru. It flows parallel with the coast in the Callejon de Huaylas between the White and the Black Cordillera, then breaks through the latter to reach the sea near Chimbote. Recuay thus lies considerably south of Trujillo.

[4] Plate XII, Fig. 1 of this publication: TELLO, Intr., Plate VIII; TELLO, Wira-Kocha, in Inca, Vol. I, 1923. p. 268, Fig. 67; XII, Fig. 2: Intr., Plate X; Inca, Fig. 61; XII, Fig. 3: Intr., Plate XI; XII, Fig. 4: Intr., Plate XII, See also, Intr., Plate IX, Inca, Fig. 76; and Inca, Figs. 64, 65, the last two being incised jaguar-head stirrup-mouths.

CHAVIN N.—The first Chavin style is that of the famous relief monolith of Raimondi, long ago brought to Lima, now in the Museo Nacional de Historia, and repeatedly illustrated and copied. Joyce, Uhle, and others have recognized that the style of this carving, although distinctive, bears definite relationship to the (Proto-) Nazca style of pottery painting, especially in its more flamboyant phase,—Tello's Pre-Nazca. On account of this resemblance to Nazca, the present style may be tentatively designated Chavin N.

CHAVIN M.—The second style is the discovery of Tello, and is represented by a number of original stelae and reliefs, or rubbings and facsimile drawings, in the museum of the Universidad Mayor de San Marcos in Lima.[1] This style is notable for its æsthetic value, which probably surpasses anything known from Peru, including even the monuments at Tiahuanaco; and further for the resemblance which its lines bear to those of Maya sculpture. How far this resemblance is specific and therefore historically significant of connection; and how far it is due to the greater liberation and power of the Chavin sculptors compared with other Peruvians, and thus has æsthetic instead of historic meaning, is a problem that will require further analysis. The superficial similarity to Maya art, however, makes the provisional designation of this style as Chavin M conveniently mnemonic.

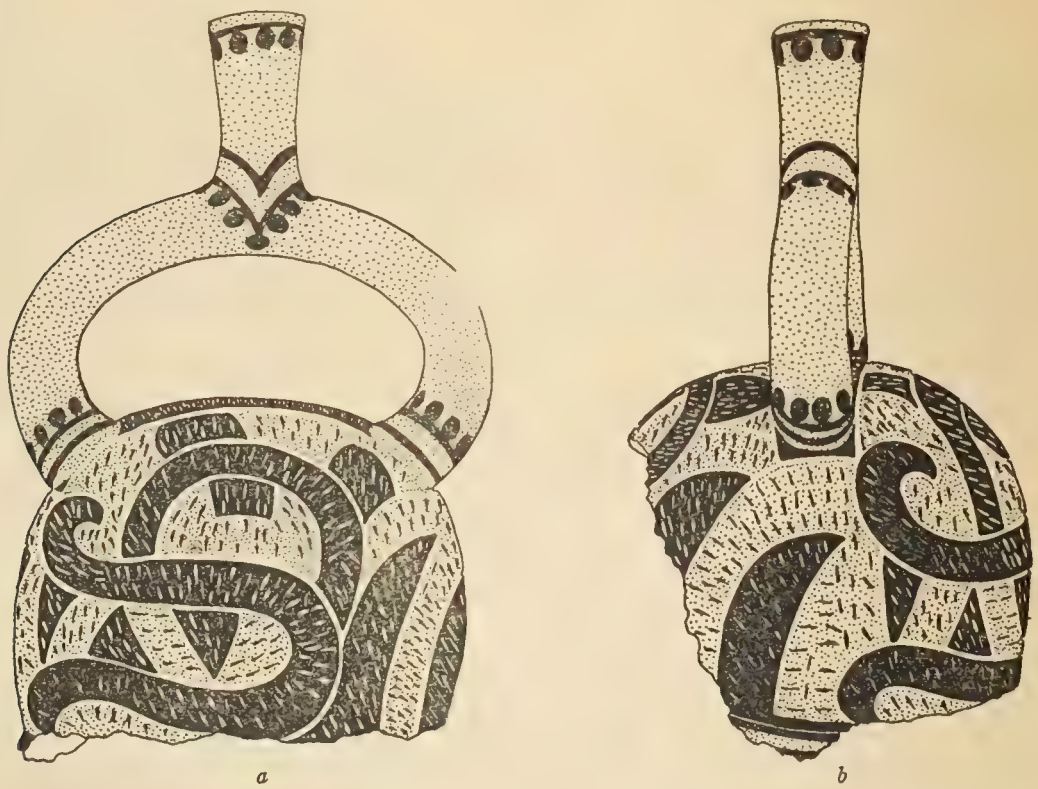
Dr. Tello has analyzed many of the motives of Chavin M sculpture and shows them to gravitate around the concept of a feline god, probably the jaguar. This concept reappears, with much the same handling of the motives, in the Chavin style pottery vessels from Chicama. These, however, are all stirrup-mouths, and hence of a shape which, so far as the evidence goes, was restricted to the northern coast region until a relatively late time. Furthermore, vessels of this Chicama style have not yet been reported from Chavin or elsewhere in the Sierra area. In fact, Dr. Tello informs me that he found little pottery at Chavin itself, and that rather crude and of archaic appearance.

It is accordingly possible that the pottery ware under consideration represents a variation of the ingrained Chimu coast style under influences from the interior; or that the vessels found at Chicama were actual imports from an interior source of manufacture which has not yet been discovered. In the latter case, the stirrup-mouth shape and technology of the ware would either have been devised on the coast and introduced into the highland Chavin culture, or the stirrup-mouth ware would have originated in the sierra and the Chimu coast pottery art be largely a derivative. Dr. Tello seems to incline to the last view; but I hesitate to derive the stirrup-mouth, which is so abundant in all periods on the coast, from a source in the interior, where stirrup-mouths are scarce or lacking. It is evident that the data are not in hand for a definitive choice between the alternative interpretations. For one thing, the proveniences of the pottery vessels in question are known only by attribution.

---

[1] Cf. TELLO, Wira-Kocha, in Inca, Vol. I, 1923, stela, Plate I (p. 274) and Fig. 72 (also Introducción, Plate VII); "lanzon," Inca, Plates III, IV; relief, Inca, Fig. 74; relief from Yauya (in somewhat stiffer style), Plate II; relief, Intr., Plate VI.—The Raimondi stone in the "N" style is shown in Inca, Fig. 77.

The age of this Chavin style coast pottery, however, can be approximately fixed. Grave associations with Proto-Chimu show it to be early. The key material in this regard as in others is the Uhle collection from Moche, which has exact site and grave proveniences. Uhle's graves 12 and 10 of his site F., at the foot of the Huaca de la Luna, each contained a partial vessel painted and incised with designs in Chavin manner, which are reproduced in Figs. 3 and 4.[1] That both pieces are incised, whereas only four others[2] of the six-hundred in the Uhle collections carry incisions, is probably also significant. As both specimens occurred in graves whose content, like that of the thirty odd other graves



a *b*

Fig. 3.

Chavin Style Incised and Painted Design on a Stirrup-mouth from Moche. *a* Front View, *b* Side View.

carefully excavated by Uhle in the same cemetery, is pure Proto-Chimu, the contemporaneity of the Proto-Chimu and Chavin styles, or to be more exact, at least their chronological overlapping, is certain.

This time association, considered in addition to the intrinsic similarities of the wares, makes it clear that there existed intimate formative relations or interrelations between the Proto-Chimu and Chavin styles, which should become more evident as soon as a pure Chavin style cemetery is discovered and its data recorded, especially as to grave associations. It is conceivable that certain fea-

[1] Figure 3: KROEBER, Moche, Plate 57j, specimen F12-2980, Fig. 4, *ibid.*, Plate 57l, F10-2896. There is a similar piece shown by Baessler in his Plate IV, Fig. 14 (Part 4). There are Chavin suggestions also in KROEBER, Moche, Plates 55e, 55h, 56h (blackware), 56j (blackware, incised).

[2] One of them the piece in Plate 56j just mentioned.

tures heretofore considered characteristic of Proto-Chimu will then prove to be of alien source, whereas others will remain as of local origin. When it is considered that Proto-Chimu ornament consists of several essentially distinct lines or aspects—realistic figure modeling, depictive painting, depictive relief, scroll and fret painting—its resolution into two or more origins should not appear improbable.

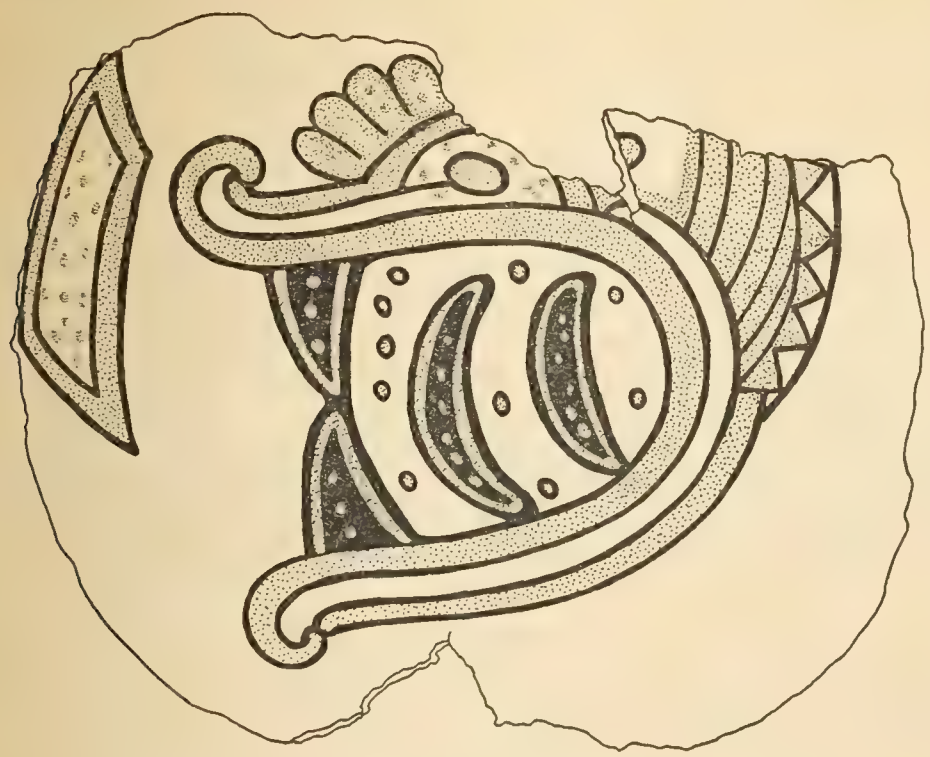


Fig. 4.
Chavin Style Incised and Painted Design on a Fragment from Moche.

CHRONOLOGY

The factor of time implied by the foregoing styles merits attention. When some eight or nine distinguishable styles or stylistic strains are found in a few smallish valleys, their time relations contain some promise of helping to unravel culture sequences, even though these relations promise to be complex through the injection of spatial factors, namely, the import or influence of foreign styles as discussed in the foregoing pages.

THE UHLE SCHEME

M. UHLE[1] has definitely established Proto-Chimu as early and (Late) Chimu as late, with Tiahuanacoid falling between, and Three-color Geometric at least earlier than Late Chimu. In fact, he separates Tiahuanacoid into Tiahuanaco and post-Tiahuanaco, besides non-Tiahuanaco which includes Cursive Tripod. I have previously recognized the distinctness of the stylistic strains represented in this subdivision, while doubting their chronological separateness at Trujillo.[2] Three-color Geometric I was inclined to place as later than Tiahuanacoid on account of the evident sequence of corresponding styles on the central Peruvian coast.[3] Uhle, however, in a recent letter expresses the conviction that the Moche Three-color Geometric contains an early element and may be pre-Tiahuanacoid.

THE HRDLICKA SCHEME

A. HRDLICKA,[4] in an account of explorations made some years ago on the coast of central and northern Peru, comes to the following conclusions as regards Chicama, the valley adjoining that of Trujillo on the north.

(1) The earliest population, which lived "not over some centuries before the arrival of the whites," was of the moderate-statured, brachycephalic race; that is, the prevailing one on the Peruvian coast between Pacasmayo and Pisco, or farther, and which is fundamentally of the same type as a large portion of the inhabitants of Ecuador, Colombia, Central America, and Yucatan. These people did not deform the head beyond some accidental occipital flattening. They lived chiefly near the shore and buried prevailingly in huacas which are nothing but "construction cemeteries" or burial mounds of adobe bricks and earth. They had little metal, and their pottery was simple and sombre.

(2) These people were followed by others of the same fundamental physical type, but of modified habits, shown in part by the pronounced occipital head-flattenings, due to cradle-boards, and especially by "the frequent practice of intentional fronto-occipital skull deformation." Their burials were mostly in

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[1] Ruinen.

[2] Moche, pp. 213-215.

[3] *Ibid.*, p. 214.

[4] Some Results of Recent Anthropological Exploration in Peru. Smithsonian Miscell. Coll., Vol. LVI, No. 16, 1911, pp. 1-16.

larger cemeteries and generally more inland; they contain more copper and bronze and more varied pottery.

(3) Finally, "at about the time of the greatest prevalence of the deformed crania" of the preceding type, "there appear individual elements of the dolichocephalic type "..." individuals, or little groups of burials," which "are not local developments, for intermediary cranial forms, which in that case would be numerous, are lacking." These heads are undeformed or merely accidentally flattened in the occiput. The pottery with these burials contains especially bowls with large, flaring, convex borders.

Hrdlicka's Plates 1, 3, and 4, which are referred to the earliest population, show respectively a three-legged bowl and a pedestal bowl of Cursive Tripod affiliations; two figurines; the head of a black jar of RFJ shape and a modeled cat-head similar to one found by Uhle in Tiahuanacoid association.[1] With the exception perhaps of the figurines, this material is all post-Proto-Chimu.

His Plate 2, referred to the last population, shows two views of a Proto-Chimu flaring bowl of type 3.[2]

There is evidently an association between the physical type and the culture which Hrdlicka ascribes to his population 1, and the same for population 3; only 3 is surely the earlier. Its pottery is Proto-Chimu, and undeformed and relatively long skulls were consistently found by Uhle in his Proto-Chimu graves at Moche site F. To complement, the pottery of Hrdlicka's population 1 is post-Proto-Chimu, and its moderate occipital deformation is normal in the late cemeteries of Chanchan.

As to Hrdlicka's population 2, with pronounced frontal flattening, skulls of this form are characteristic of the Nazca culture and its varieties in southern Peru, but seem not to have been otherwise reported from the northern coast. The determination of the type of culture associated with them would be important.

INFERENCES AND PROBLEMS

Within the frame of the four general eras of pre-Columbian Peru which I have previously outlined—pre-Tiahuanaco, Tiahuanacoid, pre-Inca, and Inca—the ceramic styles of the Trujillo area may be disposed as follows:—

Proto-Chimu and Chavin are more or less contemporary and pre-Tiahuanaco.

Cursive Tripod and Modeled, Three-color Geometric, Tiahuanacoid, and the problematical Middle Chimu are presumably Tiahuanacoid and also pre-Inca. Their more precise interrelations remain to be ascertained.

Late Chimu probably began its career in the pre-Inca era, and continued through Inca into colonial times. Red-white-black Recuoid is likely to be a contemporary at least of the earlier Late Chimu.

In the pre-Tiahuanaco era the traceable evidences for relations of the Trujillo coast with other areas are only with the northern interior.

In the Tiahuanacoid and pre-Inca eras relations extended much farther. There are indications of southern coast influences, both earlier such as Nazca-

[1] KROEBER, Moche, Plate 66e.
[2] *Ibid.*, p. 201; and *ante*.

derived shapes in Cursive Modeled, and later in Three-color Geometric; of southern highland influences in Tiahuanacoid; of northern interior and Ecuadorean influences in Cursive Tripod and Cursive Modeled and perhaps Three-color Geometric. There is as yet no clear indication of influences from the coast north of Trujillo.

In the later pre-Inca and Inca eras the last-mentioned extraneous influences persisted in varying degree, largely as impulses that had become established in the Trujillo area; the coast to the north around Lambayeque probably contributed tendencies toward blackware, and stylistic floridity and eclecticism; and certain Inca traits began to be adopted. The resultant composite style in turn was carried, or vessels made in it were transported, over the whole length of the coast of Peru and more or less into the interior.

Until this late period, on the other hand, the influence of the Trujillo coast area styles was much less expansive and apparently limited chiefly to the northern interior as far as Chavin and Recuay. Even there, influencing was reciprocal, and the relative activity of coast and interior awaits determination.

The Proto-Chimu and Chavin styles not only are apparently the earliest, but rank aesthetically highest; and the antecedents of both are unknown. With the passage of time more and more influences from and to a distance become discernible. This difference may be intrinsic, due to a widening range of cultural intercourse; or it may be apparent, and due to comparative data for the later periods being much fuller. In this event the early styles might prove to be equally composite in origin if we knew enough about their antecessors and contemporaries.

With all the stylistic borrowing that went on, there is an evident tendency toward internal assimilation of style. Late Chimu, for instance, contains style traits derived from practically every part and period of Peru; but it is no crude commingling of these elements. While it lacks the astounding creative boldness and sureness of imagination that set the earliest styles on so high a level, it evinces a taste and elegance that would be impossible without a definite inner consistency. If the history of the earlier styles were known, a similar ability to utilize and coherently rework elements of alien origin might be manifest.

Neither the areal nor the temporal factor can be disregarded in the archæology of Peru. Their interrelations make problems complex and demand the most critical approach. But an ignoring of regional considerations must vitiate any chronological reconstruction at innumerable points, as almost the whole of the foregoing discussion shows. And a negativistic attitude toward time sequences comes to little else than a refusal to consider a real and soluble problem on the ground that it is complicated and difficult.

The great need for further knowledge of the prehistory of Peru is from the highland interior. But so little detailed and reliable information is available from the coast that accurate data from there, especially as to associations of material, will almost certainly go far to clear up problems not only of the coast, but of the interior as well.

ADDITIONAL NOTES

P. 9, note 3. Subsequently, Dr. Tello has employed "Mochica" instead of "Chimu" for the red and white ware, reserving "Chimu" for the combined Tallan-Mochica culture and area.

P. 13. A subsequent view from a more advantageous point in the dry season of 1926 shows a leaning of these walls, as if they might represent a fill against the side of a smaller pyramid to connect this with a larger one into a greater structure; in other words, the Huaca del Sol may after all resemble most other Peruvian constructions in having been a piecemeal accretion.

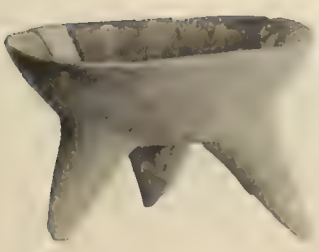
POTTERY JAR OF PROTO-CHIMU STYLE IN SHAPE OF A PORTRAIT-HEAD.
FROM CHIMBOTE, PERU (ZAVALETA COLLECTION).

1

2

3

4



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6

POTTERY JARS OF RED-WHITE-BLACK RECUOID STYLE (Figs. 1-4) AND SPECIAL TYPES (Figs. 5-6), PERU.

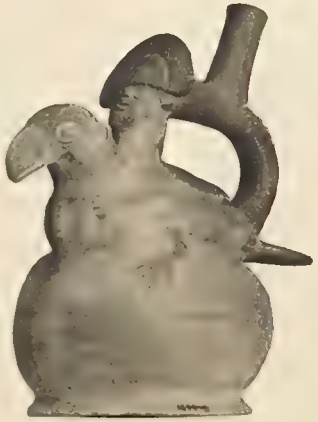
1

2

3

4

5



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POTTERY VESSELS FROM BEACH MOUNDS (Figs. 1-4) AND LATE CHIMU COLORED WARE (Figs. 5-8), FROM CHANCHAN, PERU.

1

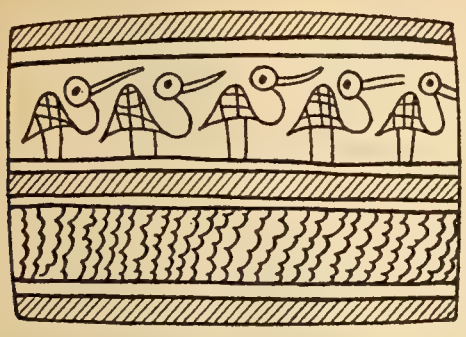
3

4

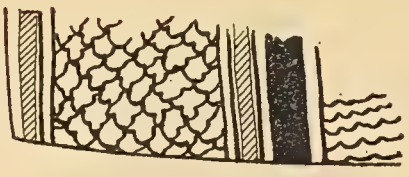
2

5

POTTERY VESSELS OF LATE CHIMU STYLE, BLACKWARE AND FIGURINES.
FROM CHANCHAN, PERU.



1



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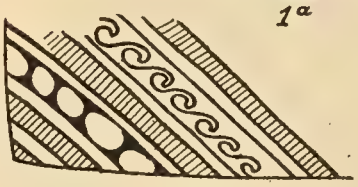
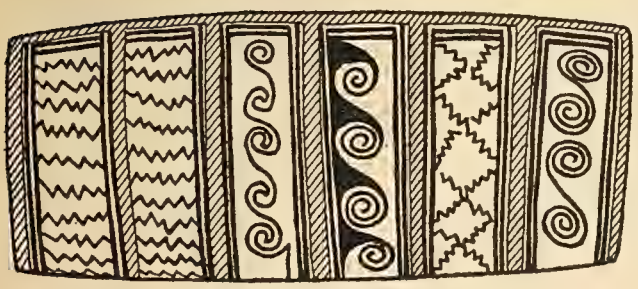


1b



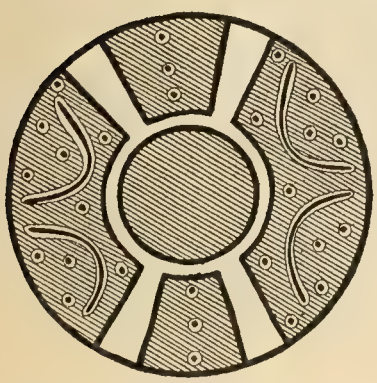
2

2a

3

3a

3b



4

5

CURSIVE STYLE PAINTED DESIGNS FROM CHANCHAN (Figs. 1-3), REGION OF TRUJILLO (Fig. 4), HUAMACHUCO (Fig. 5).

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ANTHROPOLOGY, MEMOIRS VOLUME II, No. 2

ARCHAEOLOGICAL EXPLORATIONS IN PERU

PART II

THE NORTHERN COAST

BY

A. L. KROEBER

PROFESSOR OF ANTHROPOLOGY IN THE UNIVERSITY OF CALIFORNIA
RESEARCH ASSOCIATE IN AMERICAN ARCHAEOLOGY IN FIELD MUSEUM

18 Plates, 3 Text-figures

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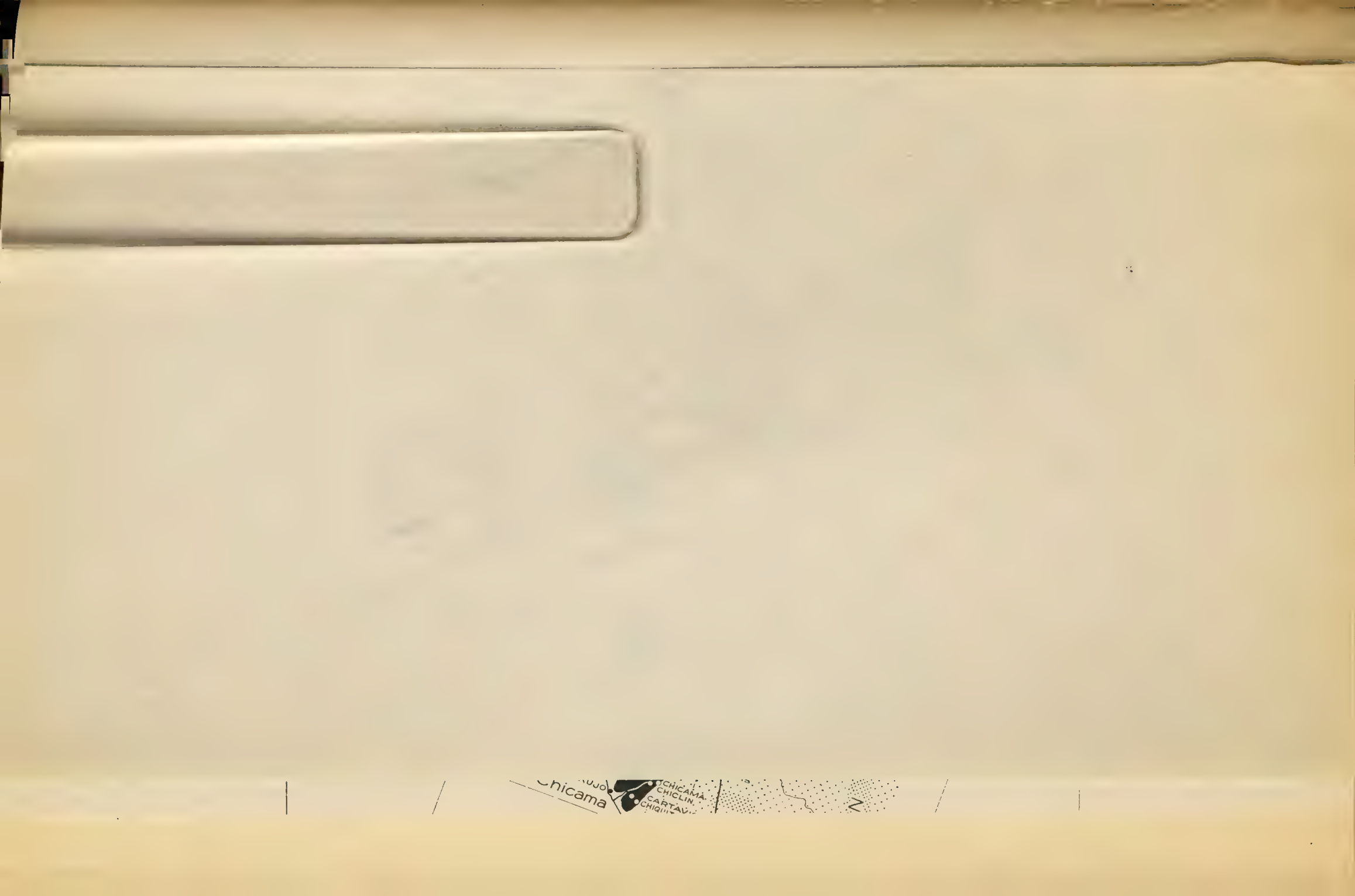
Chicama
CHICAMA
CHICLIN
CARTAV
N

NORTHERN COAST OF PERU
Irrigated.
Irrigable.
Mountains.
Desert.
SCALE
0 5 10 15 20 25 50 75 Kms.
Rio Tumbes
ZORRITOS
TUMBES
Zarumilla
Bocade Pan
Mancora
LOWER
PAMPA DE PARIÑA
TALARA
NEGRITOS
ECUADOR
Catamayo
CONTINENTAL WATERSHED
Rio La Chira
PAMPA DE CHIRA
AMOTAPE
Sulipira
Macara
Quiros
TABLAZO DE PAITA
PAITA
PIURA
LIMIT
MORROPON
Rio Piura
SECHURA
DESPOBLADO DE PIURA
SAYTRAL
DESIERTO DE SECHURA
DESPOBLADO DE OLMOS
Cascajal
OLMOS
Olmos
MOTUPE
Motupe
Rio Leche
Rio Lambayeque
MORROPE
JAYANCA
TUCUME
FERREÑAFE
LAMBAYEQUE
SAN JOSE
PIMENTEL
CHICLAYO
REQUE
ETEN
(Rio Eten)
CHONGOLLAPE
Chancay
CHACHAPOYAS
SAÑA
Rio de Saña
REGULAR
R. Seco de San Gregorio
GUADALUPE
CHEPEN
Rio Jequetepeque
PACASMAYO
SAN PEDRO DE LLOC
CAJAMARCA
MALABRIGO
CHOCOPE
ASCOPE
PAMPAS
SALAMANCA
BRUJO
CHICAMA
CHICLIN
CARTAVIO
CHIQUITOY
Rio Chicama
HUANCHACO
TRUJILLO
Rio Moche
SALAVERRY
MOCHE
MARCA HUAMACHUCO
SANTIAGO DE CHUCO
ANNUAL
GUAÑAPE
Rio Viru
VIRU
Rio Chao
CHAO
Chuquicara
SUCHIMAN
Huatas
Rio Santa
SANTA
CHIMBOTE
Lacramarca
SAMANCO
Rio Nepeña
NEPEÑA
CARAZ
YUNGAY
Rio Casma
CASMA
YAUTAN
RAINS
HUARAS
CHAVIN DE HUANTAR
Rio Culebra
Rio Huarmey
HUARMEY
AIJA
RECUAY
Fortaleza
Pativilca
79°
78°
77°
76°
8°
7°
6°
5°
4°
9°
10°

FRESCOS, HUACA DE LA LUNA, MOCHE

BLACK, WHITE, RED, YELLOW, LIGHT BLUE, PINK, BROWN

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ARCHAEOLOGICAL EXPLORATIONS IN PERU

PART II

THE NORTHERN COAST

INTRODUCTION

This monograph presents the results of the Second Marshall Field Expedition of 1926 in northern Peru. In both the First and Second Expeditions the main objective was the coast area from Lima to Nazca. In both cases, however, a reconnaissance was made to the northern coast—in 1925 for a week, in 1926 for a month. During a fortnight of this month I had a motor car available, and was able to visit the valleys from Virú to Leche inclusive, seven in all, whereas during the preceding year I saw only the valley of Moche or Trujillo. The 1926 reconnaissance was planned and largely executed jointly by Dr. J. C. Tello, the official representative for archaeology of the Peruvian government, and myself, on behalf of Field Museum. The car used belonged to Field Museum; the driver was in the service of the national government. Dr. Tello and I were together in Trujillo and on the road as far as Chiclayo and Pimentel; thence he left by ship for Lima. I remained several days longer in the vicinity of Chiclayo and Lambayeque, drove north as far as Túcume on the Rio de la Leche, returned to Trujillo, and visited, on the last day available, the valley of Virú south of that city. This means in short that I was able to inspect some of the principal ruins, cemetery débris, and collections in somewhat more than half the territory of each of the two recognized Chimu or north Peruvian coast areas: that of Chimbote-Moche-Chanchan-Chicama, in which both an Early and a Late Chimu culture have been determined; and that of Pacasmayo-Saña-Etén-Chiclayo-Lambayeque-Leche, from which available collections showed only a ceramic ware similar to the Late Chimu of the first area. The objective was to determine the culture relations of these two provinces and the culture sequences within each; and up to a certain point this objective was attained. Excavations would hardly have been feasible in the brief time available and were not attempted. But several sites were determined as important for systematic exploration, either on account of the extent of their ruins or the strategic significance of the wares in their cemeteries, as Ciudad de la Barranca, El Purgatorio, Taitacantin. It is hoped that the descriptions here given will serve as a stimulus to intensive work at these and other sites.

Inasmuch as the pottery problems of northern Peru have already been treated in a report published after the First Expedition (No. 1 of this volume), the illustrations in the present memoir have been devoted principally to views and sketch plans of the ruins. However, the new experience gained has somewhat consolidated the interpretations previously drawn, so that the former

analytic approach can begin to be replaced by a more simple and synthetic one. For this reason the whole matter of ceramics is reviewed.

I employ the term "Early Chimu," instead of "Proto-Chimu," which was introduced by Uhle and used by myself heretofore, because "Proto" implies a formative stage and the culture in question is already a fully formed one with an aesthetic development never again equaled in quality in the area. Exactly the same applies to "Proto-Nazca" and "Proto-Lima" and makes "Early Nazca" or "Nazca" and "Early Lima" more appropriate terms. The literal Proto-Chimu period is as yet wholly unknown. "Epigonal" no longer means to me, and I understand it no longer does to Dr. Uhle, a culture type derived from or decaying out of that of Tiahuanaco, but a general, widely spread style or type, of which that of the monuments of Tiahuanaco is a specially developed or classic phase. As regards time periods, therefore, "Epigonal" and "Tiahuanacoid" are here used as synonyms; when stylistic strains are in question, Epigonal denotes the more widely distributed and carelessly executed; Tiahuanaco, the more rigorous and pretentious phase of what in the main was a single culture current.

The preceding and the present monographs deal with only a small part of my explorations in Peru under the Marshall Field Expeditions. Both collections and data obtained in the central and southern parts of the country are fuller. They necessitate, however, much more intensive classification and study, which have led into some specialized fields, such as textile techniques; and the preparation of a full report necessitates a longer time. It is with some reluctance, therefore, but due to an unwillingness to delay all results, that Dr. Laufer and I have considered it best to issue at once the less extensive materials dealing with northern Peru.

I. GENERAL FEATURES OF THE RUINS

THE NORTH CENTRAL LINK

Between Lima and the Chimu region, or more exactly between Ancon and Virú, is a stretch of coast which I have not visited. This stretch comprises first the valleys of Chancay and Huaura, where there flourished at the time of the Conquest the culture of Chancay, characterized by a special type of black-on-white pottery to which the contemporary and less characterized Sub-Chancay (Chancay-like) style of Chillón and Lima valleys is an approximation. Next north are the valleys of Supe, Pativilca, Fortaleza, Huarmey, and Casma[1] (Map, Plate XIV), in which the Chancay style is no longer found. The black Chimu ware of the north makes its appearance apparently in isolated cemeteries, and the local ware bears a strong highland impress. This local style is known from collections made by Uhle at Supe (Kroeber, Supe, U. C., XXI, 1925) and by Tello at Huarmey, the latter as yet undescribed. Next north are the valleys of the Nepeña, Santa, and Chao, with which the Chimu culture begins. The Santa is the one river of the Peruvian coast whose heads lie back of the first range of the Andes. Its upper and longer course thus is through a valley which is unique in being longitudinal instead of transverse. This is the famous Callejón de Huaylas, whose ancient culture, however, belongs to the highland, so that the lower or transverse part of the course of the river, that which alone is locally recognized as the Santa, and which falls within the range of the Chimu culture, resembles all the other coast rivers except in being larger and more permanent. It has also but little irrigable plain along its lower course. One effect, however, of the unusual course of the upper Santa, or of the arrangement of the Andean chains which determine its course, is that the streams from the Fortaleza to the Virú inclusive do not head in the continental watershed, are not fed by snows or the heavier rains, and thus carry less than the usual amount of water to their lower valleys. This stretch of coast, therefore, was and is relatively poor and culturally backward.

CHIMU LAND AND CULTURE

The Chimu coast, from the Santa north (Map, Plate XV), divides into two archaeological areas, whose distinction is primarily cultural, although it coincides also with certain geographical differences. Linguistically, it may be remarked, the whole Chimu coast, or most of it, was a unit, its speech having been local varieties of the Mochica (Yunca, Yunga, "lowland") language.[2] The southerly part of the tract, comprising the Santa, Chao, Virú, Moche (Trujillo),

[1] Casma has not been explored and may prove to be transitional, or even more Chimu than Central Peruvian.

[2] Rivet (in Meillet and Cohen, Les langues du monde, p. 678) distinguishes a Sek family on the La Chira and Piura Rivers from the Yunka or Mochica farther south.

and Chicama valleys, shows two forms of Chimu culture, a red or Early and a black or Late Chimu, besides evidences of highland intrusions falling probably between the two (Kroeber, Moche, p. 224, 1925). The northern Chimu area comprises the Jequetepeque, Saña, Lambayeque-Etén-Chancay, and Leche-Motupe drainages, which I have visited; and, to judge by reports and specimens, those of the Olmos, Piura, and La Chira also.[1] This northern tract has to date yielded evidence of only one form of Chimu culture, corresponding closely to the black or Late phase of the southerly province. The line of cleavage is sharper on the ground than at a distance: Jequetepeque, which on the basis of the attributed localities of museum collections appears somewhat transitional, is wholly northern or Late Chimu in local collections and site débris.

The geographical counterpart of the difference between south and north Chimu culture is the greater departure of the northern province from central and south Peruvian conditions of precipitation and valley separation. In the latter point, the Santa-Chicama stretch is still typically Peruvian; but the Jequetepeque is separated from the Saña and this from the Lambayeque by only low swells of desert, and the plain of the Lambayeque runs imperceptibly into that of the Leche. The intensive cultivation is farther and farther from the sea to the north, approximating the condition of the wholly inland valleys of Olmos and La Chira.

As regards precipitation, even the south Chimu province appears to have somewhat more than central Peru, and north Chimu more yet. This is first of all apparent in the ruins, which are more washed and torn into gaps the more northerly they lie. Then, south Chimu has record of one destructive rain as against none in central Peru, but north Chimu of several. In the abnormal year of 1925, there was heavy damage on the central and south Peruvian coast, but it was done essentially by floods caused by rains in the lower Sierra. In south Chimu, it rained heavily on the coast itself. Yet the fact that one of the pre-Spanish adobe arabesques of Chanchan was destroyed by this rain, after having stood with little impairment for four centuries (Holstein, p. 21, Figs. 13–18), indicates the extremely long periodicity and local character of the rains in this sector. For north Chimu, however, we have record of a similar catastrophic precipitation in 1578 (Brüning, I, pp. 14, 28) and legendary accounts of earlier ones. For the practical purposes of daily life, all the Peruvian coast is rainless; but in a long range of years the "exceptions" grow more and more numerous to the north. At Piura there is said to be a local belief in seven-year rains.

The general status of precipitation is reflected by the fact that, from the Jequetepeque south, the plains or ridges between the coastal valleys are wholly

[1] The cultivable valleys of the Olmos, Piura, and La Chira lie chiefly at the foot of the mountains which here run at some distance from the shore; and deserts separate the settlements from the ocean. This geographical difference is likely to have had a cultural reflection, which may yet prove to have been of sufficient importance to necessitate the separation of the Olmos, Piura and La Chira into a third Chimu province; although not according to the scant indications at hand.

desert, whereas from the Jequetepeque north at least to the Leche they bear some vegetation rooted in the soil.

As usual on the Peruvian coast, the position of ancient sites with reference to cultivation, streams, and beach indicates that there has been no appreciable change since prehistoric times in elevation of the land, quantity of available water, or, generally, even the agricultural usage of water. The one partial exception is that in some of the northern valleys large seaward portions are now bare pampa, or pasture watered by infiltrations from irrigating water entering the soil higher up, but that these lower stretches contain ancient constructions of considerable size, as at Brujo in Chicama, or refuse accretions, as at San José in Lambayeque (Map, Plate XIV). The probable explanation is that formerly maize, other food crops, and a little cotton were everywhere grown, and the water sufficed to the sea; whereas with the modern plantation system, which concentrates on sugar cane and rice, plants that require an abundance or excess of irrigation, the water no longer suffices for the whole valley. As a matter of fact, the cane and rice fields are all in the upper reaches, evidently because there they can be sure of water, and the lower levels have gradually been left to semi-cultivation. Farther south in Peru, where cotton or vines largely replace sugar as the staple hacienda crop, there has been less abandonment of the seaward parts of valleys.

CONSTRUCTION

STONE, ADOBE, TAPIA, FILL

Like the remainder of the coast, Chimuland is an area of adobe, not stone construction. The latter was not unknown; there are stone foundations at Chanchan (Plate XVII, Figs. 2, 4); but broadly speaking adobe and stone are direct functions of environment here, as farther south. The open valley uses adobe; where it narrows and the rocky sides are close, or even furnish the sites for structures, stone walls begin to appear, even though the culture is still coastal; with the ascent into the Sierra, stone more and more preponderates. The imposing ruin of the Castillo in Virú (Plate XVI, Fig. 1; see also Holstein, Fig. 36), set on a rocky spur jutting into the higher valley, is an example of stone and adobe used side by side, the former chiefly in high retaining walls facing the natural rock. A little upstream are two small pyramids entirely of stone. On the other hand, the Purgatorio at Túcume on the Leche (Plates XX, XXXI), while half surrounding a rocky *cerro*, is set in a plain, and is wholly of adobe except for some unimportant low walls whose relation to the main structures is not clear.

Chimu construction is typically of adobe bricks. Tapia, continuous mud construction, is conspicuously rarer than in central or southern Peru. So is the system of alternating wall and fill, a method abundantly practised in the Early Lima culture, as well as in the later constructions of Lima, Cañete, and Chincha. Chimu fill is not lacking, but is rarer. Moche seems almost without it; Barranca

in Jequetepeque shows considerable, whence the masses of coarse refuse sherds which characterize this site. Chanchan, on the other hand, possesses some massive walls of tapia full of coarse gravel (Plate XVII, Fig. 4). Nearly all the Chimu ruins have the surfaces so washed as to hide most of the original construction. A cut generally reveals adobe where tapia seems indicated. Possibly I have overestimated the amount of correction to be so made. Systematic cleaning of the surface would render the situation more precise.

ADOBE BRICK

The Chimu adobe brick is substantially alike for the Early and Late periods, as shown by comparison of the Huaca de la Luna at Moche with Chanchan.[1] It is large, form-made, rectangular, rather flat. It is not quite as large nor as true as the Inca or Late adobe used in the best surface construction farther south—at Pachacamac, for instance, or the Tambo de Mora group at Chincha, or even at Paredones in Nazca. Perhaps its constant use for the hidden interior of solid structures contributed to the habit of not finishing it with the greatest regularity or uniformity of size. The length averages 30 cm. or a little over; the breadth, from three-fifths to three-fourths as much, in the mean about two-thirds; the thickness is from one-fourth to one-half of the length, on the whole more rather than less than one-third. There is no standard set of proportions adhered to—only a vague approximation to an ill-defined shape. The same is true of size: at Chanchan I have measured adobes of 26 and of 46 cm. length. A series of measurements is given below. If the Chimu had any system of normalized weights and measures, which is doubtful, it did not enter into their brick-making. The variability of the adobes is in line with the rather ragged laying of them. Plate XVII, Fig. 4, for instance, shows two courses merging into one without any structural reason, from pure slovenliness; and the breaking of joints is only haphazardly observed.

In the north Chimu area there occur adobes with rounded tops, although otherwise rectangular. I observed these first at Chotuna near Lambayeque (Plate XVIII, Fig. 4), and subsequently in the Leche and Jequetepeque valleys (Purgatorio, Huaca de los Estacos, in the latter only to a mild degree). They probably occur in many other northern ruins; but these have their surfaces so smeared with rains that only a tunnel or fresh cut into a wall shows the original shape of the bricks. Graves in the Brujo group of Chicama seemed to contain rounded adobes; but these were all exposed to the weather and had probably been manufactured flat. The southern province uses flat-topped adobes exclusively, so far as I observed at Brujo, Chanchan, Moche, and Virú. The round-topped adobe shows most plainly where its end has been laid toward the wall surface or exposure, since it is chiefly the upper surface that curves cylindrically. From the side, round-toppedness is usually first evident through the apparent

[1] So far as there is a difference, the early adobes at Moche perhaps average a little the larger, as I stated previously (No. 1 of this volume, p. 15), and as the figures given below suggest. But the variability within each style is greater than the mean difference between them.

thickness of the mortar between courses. All Chimu adobes are laid in abundance of mud mortar; the round-topped ones seem to have the usual quantity above the center of the brick and therefore even more than usual at the edge.

The purpose of the top-rounding is obscure. It recalls the hand-formed adobes of Early Lima structures, and the rounded and handmade or "odontiform" adobes characteristic of the Nazca culture and its influences. But it is hardly credible that the north Chimu pyramids should be early—at any rate that they should antedate the Early Chimu period structures of the south Chimu area, especially as their pottery is the equivalent of the southern Late ware. The top-rounding is therefore a local peculiarity; possibly also a partial survival from an earlier stage of handmade adobes.

I have spoken of form-made adobes. I have seen a few with plain impressions of small reeds (*totoras*); but there is no indication that these were regularly used in shaping. Nor have I seen positive evidences that a wooden form was employed, such as is in use today. Adjacent bricks vary in size, and their surfaces often fail to be true planes; so that it seems doubtful whether they were actually molded in a frame. It may be that they are tool-made rather than form-made. On the other hand I have not seen on Chimu adobes the finger impressions which are so characteristic of Early Lima and Nazca adobes. The whole subject of Peruvian adobe manufacture is in need of a thorough examination as to material, process, shape, and measures.

Some specific observations follow:

The hole or attempted tunnel in the front of the main platform of the Early Huaca de la Luna at Moche has exposed to view adobes that have not suffered from weather and are still partly embedded in the mud mortar. The commonest size is (33±1)x(25±3)x(9±2) cm., with occasional larger variations. Others, too high to reach for measurement, show exposed sides (and ends?) of 40 and 45 cm. In other parts of the Moon cluster I found 30x22x(10–12), each dimension ±1 cm.; and again, series that ran around (27–28)x(17–18)x(13–14). Two cuts found in the east face of the Sun pyramid gave more consistent results: (39±1)x(25±1)x(15±1). In every case there are occasional bricks which depart more than the indicated variation from the norm.

At Chanchan, in one wall: lengths, 26, 28, 30, 35 cm.; breadths, 15, 16, 19, 25 cm.; thicknesses, 9, 14, and, in groups of several bricks with included mortar, averages of 12.5, 13, 14 cm. Leaving aside the aberrant length and breadth maxima, this would give about 28x17x11 as norm, but with frequent departure of a full 2 cm. in each direction for each dimension.

Another Chanchan wall was built of large adobes whose substance (not only the bottom) contained much coarse gravel. These ran (37–46)x(26–28)x(16–18), or a mean of 40x27x17, with the variability greatest in the length. The breadth and thickness of these is close to the length and breadth, respectively, of the previous series; they have therefore more than three times the bulk. They are slightly larger than the measured adobes in the Moche Sun pyramid, and of the same proportions.

A third Chanchan wall showed at its exposed top six adobes set on edge lengthwise the wall, standing each about 24 cm. high (i.e., broad in laid position) and measuring 206 cm. in line, or 34.5 cm. each with included mortar, equivalent to a net average length of 32 cm. Immediately adjoining this course were smaller bricks, also set on edge, but across the wall. These stood 18 cm. high (i.e., broad) and 26 cm. long; the combined thickness of

four with included mortar was 44 cm. As the mortar was thinner, the mean net thickness was 9.5 cm. This case is instructive as to Chimu building process. The large adobes had their largest faces to the surface of the wall, the small ones the smallest faces; they were laid in adjacent groups on the same level. As the two sizes have no dimensions in common or in simple multiple relation, the two parts of the course differed in both height and thickness. As long as bricks are regularly laid in different positions in distinct courses, the motive may be either decorative effect or an attempt to break joints. An unconformity like the present one indicates that the Chimu often proceeded rule-of-thumb fashion in laying their adobes, as they did in making them. The same thing is shown by two courses that merge into one in the Moon pyramid. To be sure, this is work in the concealed interior of a large mass, and I have not seen similar crudenesses in exterior surfaces. But the work is slovenly to a degree. These big piles were evidently the labor of population masses working communally, and not of professional artisans.

Reduced to percentages, the previous series run:

Moche, Moon, Early	100x76x27 100x73x37 100x64x50	Chanchan, Late	100x61x39 100x67x42 100x75 100x69x36
Moche, Sun (2), Early	100x64x39		

The breadth varies from 61 to 76 per cent of the length, the thickness from 27 to 50 per cent, in *series means;* the absolute length of individual bricks, from 25 to 45 cm. Thickness ranges from 36 to 78 per cent of the breadth. The two stand in a roughly inverse relation to each other, as long as the length remains the same. This is the sort of relation that might arise among a people who thought in terms of approximate weight and not of dimensions.

Uhle (Pachacamac, pp. 102–103) comes to similar conclusions. He cites adobes 8x7x4 in. and 2x1x0.5± ft. In one flooring the length varied from 14 to 20 in. In one terrace, containing five sizes, the length ran from 13 to 18, the breadth from 8 to 15, the thickness from 3 to 6 in. In general, the smaller bricks are used for fill at Pachacamac, the larger ones on exposed surfaces. On the whole, late adobes seem somewhat larger than earlier ones; but no safe inferences as to age can be drawn from size of adobes, nor from relative frequency of tapia and bricks. Pachacamac has more brick, but tapia is more frequent in most valleys of the central coast.

It is hard to conceive from the above figures that the Chimu aimed at any simple numerical relation in the proportions of their adobes; and harder still to believe that they used any standard of measure for them.

It is also clear that Early and Late Chimu adobes are about equally variable and are practically indistinguishable.

LAYING OF THE ADOBES

The mud mortar, as already mentioned, is laid rather thick. Mostly it does not differ much in color or consistency from the adobes. In one of the Mocce huacas at Lambayeque a calcareous or whitish mud has been used, giving a first impression of lime mortar and Colonial construction.

The usual construction of the Chimu pyramids and platforms is a system of adjacent thick walls. These are not bonded, but are separated by clean though concealed vertical planes often many meters high. The massiveness of the edi-

fices overcame the structural weakness of the plan. In fact, I do not recall serious fissures along the cleavage planes. Usually the planes show only where the huaca has been cut into. I have already commented on this construction being visible on the undercut side of the Sun pyramid at Moche (No. 1 of this volume, p. 13). The Virú Castillo shows on its north face a large, nearly vertical sheet only one adobe thick; about half the sheet is still in place against the steep face of the pyramid. This was very likely a supplementary facing. Brujo in Chicama has a cut in its south face several meters wide and more than ten meters deep, almost to the center of the huaca. This cut is said to have been made to secure adobes, not gold. The two sides of the cut are perfectly smooth walls, giving the impression of being part of the original construction. If there had been any joint-breaking, the surfaces of the cut would of course have had every alternate brick projecting. Down the faces of the cut there extend straight lines representing other cleavage planes at right angles. This pyramid is therefore built up of a series of high and thick juxtaposed walls, each consisting of a series of juxtaposed rectangular columns. This seems the typical Chimu construction wherever the decayed surface is penetrated.

The reasons for this construction may be social, each contingent of a community building its own wall or column. In any event, the impression which I have previously expressed is strengthened; namely, that most Chimu edifices appear to have been largely reared as units rather than by the gradual accretion which is so often indicated in central and southern Peru.

Within the walls and columns, a partial equivalent to joint-breaking is sometimes obtained by laying successive courses of adobes at right angles, so that the sides of one course and the ends of the next face the same way. At Chanchan there are also courses of adobes set on edge. This I have not observed in the visible exposures in the north Chimu province; perhaps the round tops militated against it. But the different horizontal placing of adobes appears everywhere, and is a feature of interiors as well as surfaces. It is therefore essentially a construction feature; though it may also have been used decoratively on outsides.

Many Chimu huacas show horizontally projecting stakes, layers or mats of reeds, or both, among the adobes, especially at terrace levels. These are visible in several of the Purgatorio pyramids (Plate XX, Fig. 3); also in La Rajada, and in the Virú Castillo. The latter shows a few stakes laid a meter or so below the others at right angles to them, parallel to the pyramid surface. It seems that none of the stakes were originally exposed, but have come to view owing to crumbling or washing away of the surface. They suggest bonding, especially at Virú; but the reed layers can hardly have served such a purpose effectively. Purgatorio F also has layers of small stones at the stake levels. It seems more likely, accordingly, that these non-mud materials served to protect the adobe at the terrace edges.

It is well to state expressly that all the construction features here discussed, except where the contrary is specifically mentioned, as in the case of the round-top bricks, are common to Early and Late ruins of south Chimu and the undated

ruins of north Chimu. Substantially the same uniformity holds for structural plan, although here there is greater variability from huaca to huaca.

PYRAMIDAL STRUCTURES

The typical Chimu huaca is a rectangular block, without outer works, rising steeply with very narrow terraces, or none at all, the faces sloping inward at a slight angle from the perpendicular; there is often a ramp approach, either along the sides or extending straight out from the top (see plans in Plates XXVII–XXXI). This top is most often a cemetery in the northern sub-area. Sometimes there are two or three successive levels toward the front only, the back falling sheer; sometimes there is a large burial terrace, from the rear of which rises the pyramid proper. Both plan and appearance are suggestive of Mexican structures, especially as compared with the huacas between Lima and Chincha. The latter have wider terraces in the pyramid proper, and vertical or nearly vertical steps; usually show no indications of inclined approaches though there may be stairways, as at the Pachacamac Sun temple; are not stepped up from a low front to a high back; are often grouped or partly connected, either with each other or with smaller buildings; and usually seem not to have carried cemeteries on their summits or terraces, but rather to have had these placed near their foot. A fair-sized Late huaca at Infantas in the Chillón valley is an exception in having its long summit surface a cemetery.

The descriptions I was able to record on Chimu huacas will be found in detail in Part II; some of the more general features will be summarily discussed here, in connection with an attempted classification.

Class I. Owing to weathering, it cannot always be decided without clearing whether a pyramid always rose sheer or originally possessed narrow terraces. Of one or the other type, however, and rising to a fairly bold height, are the following, those with preserved terraces being indicated by a "T": Castillo (T) in Virú; Brujo, Huaca Blanca, Cartavio 1 (T), Sonolipe, Pan de Azucar, Chicamita in Chicama; Dos Cabezas in Jequetepeque; probably La Rajada in Saña; Chotuna in Lambayeque; and Purgatorio A and E (T) and Huaca Grande at Túcume in Leche. Most of these stand substantially isolated, although Dos Cabezas, La Rajada, and Purgatorio E have other structures near them, and Cartavio 1 is surrounded by a walled court.

Class II. Fundamentally of the same type, though relatively low and large, and one-storied, are: Sinán at Pacasmayo; La Mesa in the Dos Cabezas group, Barranca B, D, E, F, in Jequetepeque; Moche B and C in Lambayeque. These are all northern Chimu.

Class III. Large platforms with superimposed pyramid at one end: Sol at Moche; Purgatorio I and to a degree F.

Class IV. Rising in terraces from front to rear: Barranca A, C, G, H, Estacos near Guadalupe, in Jequetepeque; Etén in Lambayeque; and in a measure Purgatorio F and I, perhaps G. These also are all northern.

The last two classes cannot be rigidly distinguished.

They are further connected by possessing a ramp, in all the cases cited, except apparently Barranca G. Ramps also appear in the following: Virú Castillo (a rocky spur built up with adobes); Chotuna; perhaps the Grande at Túcume, though this is badly torn up;

and, so far as can be judged from a distance, Gallinazo in Virú and Cartavio 3 in Chicama. Others of the Chicama huacas may have ramps not visible from the sides viewed.

The ramp projects out from the mass of the pyramid in Gallinazo, Huaca del Sol, Cartavio 3, Barranca H, Purgatorio F, G, I. It runs over the front face of the huaca in Barranca A and C (with some added projection), Etén, and perhaps Purgatorio C. It clings to one or more sides in Estacos and Chotuna, in the latter plus a projection.

A Class V might be set up to include huacas that appear to be essentially reared of refuse, and which Uhle would probably call shell mounds. They seem, however, to be more than incidental heaps of débris; at any rate were used for burial; and approximate Class II. They include: Huaca Negra near Brujo and several low mounds at the beach of Salamanca in Chicama; Huaca Blanca near Pimentel, and the group consisting of the Huacas San José, del Panteon, and de la Cruz, in Lambayeque. These are all at the edge of the beach.

Huacas built on the summit of a rocky hill, or against the side of a hill, are the Castillo, the gigantic Santa Clara, and the three of Zaraque, all in Virú; and the Luna of Moche. The Sol of Moche may be of the same type if Major Holstein's conjecture that it conceals a *cerrito* is confirmed. It appears that this placing is typical of the southern valleys; I have not observed it in Chicama, although the northern half of this valley contains rock outcrops and hills that would have lent themselves to such construction. Chicama in this matter goes with the northern province instead of the southern one with which its pottery affiliates it. In the whole northern stretch the pyramids stand free, either within cultivation or in pampa just outside. The Túcume Purgatorio is built around a rock *cerro;* but the only ones of its numerous structures that lean against the hill or conform to it, are the small B and the low and ill-defined J. The center of the hill-building custom seems to have been Virú, a narrow and short valley more subject to influences from highland culture, which evidently extended nearly to its center. It is in Virú that the only stone-built pyramids were observed (San Juan) and that the cemetery showing the most marked inland pottery styles has been found (Taitacantin).

Chimu pyramids are high as well as steep-sided, surpassing those of the central and southern coast both on the average and in extremes. The tallest that is usually regarded as a clear construction is the Huaca del Sol, 41 m. high according to Uhle. The Castillo and Santa Clara in Virú surpass it with altitudes which I estimate at 50 and 55 m. above the plain; but they are both built on natural rock outcrops. At that, however, there is construction for the heights mentioned, if the lower facings and retaining walls are included. Other structures in the Chimu area rise to heights which I estimate, without enough practice to make me very confident as to accuracy, as follows:

In Chicama: Blanca, 22 m.; Brujo, 18; Pan de Azucar, Chicamita, Cartavio 1, about 20; Sonolipe is said to surpass all these. In Jequetepeque: Sinán, 10; Dos Cabezas, main huaca (A), 25, La Mesa (D) and B each about 12; Barranca, none over 12; Estacos, 12. In Saña, La Rajada, 20 or more. In Lambayeque, Etén, 16, Moche, 11, Chotuna, 15. In Leche, Purgatorio F, 18, C, D, G, I, each 15, Huaca Grande, 20. The Chanchan huacas, which are badly torn up and which I did not examine with care, are not unusually large or high.

In central and southern Peru the greatest elevations are attained by the Early Lima huacas of Aramburú and Juliana, which appear low on account of their length, but are estimated by Uhle at 30–35 m., by myself about 5 m. less; the Sun Temple of Pachacamac, which caps a natural hill; and the group at Tambo de Mora in Chincha, for which Uhle estimates 30 m. The Cahuachi terraces at Nazca rise to at least 30 m., but are adobe facings of hills, not pyramids.

The distribution in Peru of pyramidal or terraced structures, and of their types, can be outlined roughly.

The Chimu coast has the largest edifices, with the steepest sides, and with inclined approaches. On the central coast, along with smaller size, there is a tendency to change from truncated pyramidal to terraced profile, and the ramp is less developed or lacking. The most southerly large structures are at Chincha; Pisco and Ica still have huacas, but no very notable ones; Nazca only miniature ones—mastabas rather than pyramids—or terraced hillsides; from beyond there are no reports and presumably nothing more than rudiments.

In the interior, in order from north to south, there are the following. Seven leagues from Cajamarca, at Coyor or Incatambo, a low elliptical cone of nine stages, according to Wiener, whose reliability is often questionable; even if his plan is correct, it is doubtful whether this structure could be construed as a pyramid. At Marca Huamachuco, the great ruins appear to be true walls, not a pyramid shell. Near Pomabamba, in Marañon drainage, Tello figures what may be a pyramid at Yayno, 3.5 leagues southwest of the town, and Wiener a six-stage cone (!) called Huinchuz at Culluc. In the upper Santa valley or Callejón de Huaylas, Tello mentions a series of pyramidal structures, apparently of moderate size: Tumchu-kayko at Caraz; Wansakay at Yungay; Wilka-waín, Okopampa, Killkay, Poma-kayan at Huaraz; Wari-raxa at Recuay. Chavín de Huántar, east of Recuay in Marañon drainage, has a pyramidal temple with interior galleries. Huánuco Viejo, farther up in the same drainage, has an impressive one-story platform which in the illustrations looks as if it might be a high enclosing wall but is spoken of as a *terre-plein*, or as nearly filled with earth and stones. At Jauja, in Mántaro drainage, is another one-story platform, with stairway. At Vilcas-huaman, in Apurimac drainage and ancient Chanca territory between Ayacucho and Andahuaylas, there is a small, oblong pyramid, or platform, according to Wiener of three stages, according to Middendorf of two, with staircase. By Middendorf's plan, the platform measures less than 20 by 10 m. All the foregoing highland structures are of stone, and most of them either wholly megalithic, or of alternate layers of great stones and slabs.[1]

From this list it appears that the inland areas for which true step-pyramids are as yet attested are the upper Santa and Marañon drainages. Only Vilcas-huaman lies isolated far to the south; but it is small.

[1] Descriptions and illustrations by Tello, Antiguo Perú; Wiener, Pérou et Bolivie; Squier, Peru; Middendorf, Peru, III. Cajamarca: Wiener, pp. 131, 132. Huamachuco: Tello, Figs. 10, 11; Wiener, p. 152; Middendorf, pp. 292–296. Pomabamba: Tello, p. 130, Fig. 7; Wiener, p. 191. Caraz, Yungay, Huaraz, Recuay: Tello, p. 44, Figs. 15, 16; Middendorf, pp. 29, 81. Chavín: Tello, p. 46, Fig. 17; Wiener, pp. 199–205; Middendorf, pp. 93–103. Huánuco Viejo: Wiener, pp. 210, 215, 217; Squier, p. 217; Middendorf, pp. 116–122. Jauja: Wiener, p. 243. Vilcas-huaman: Wiener, pp. 265, 266; Middendorf, p. 553.

The coast then is the part of Peru of which the step-pyramid is essentially characteristic, and within the coast region the north seems the center of development. It is probably significant that the dependably reported highland occurrences are from the one coastal stream, the Santa, which flows through a true interior valley, and from the western or nearer slope of that part of the Marañon basin which lies abreast the Santa. The distribution, in short, indicates a Chimu area origin, within Peru, for the pyramid, with a penetration inland at the point of easiest access, and a considerably greater irradiation southward along the coast. Whether this Chimu center of diffusion is in turn to be connected with Mexico-Guatemala, to which it lies both nearest and open by sea, is a more difficult problem.

It is possible that the coastal predominance of pyramids is to be connected with adobe-building habits. A large pyramid of stone must be tremendously laborious to erect, and a small one unimpressive. After all, the substance of the great pyramids of Mexico and Central America is adobe or rubble-lime concrete. The stone to which the Peruvian highland was addicted as material gave much greater effect, for effort expended, in walls.

OTHER STRUCTURES

The highest and probably the bulkiest pyramidal structures in the north are Early Chimu: Huaca del Sol, Santa Clara, Castillo. The first of these is the highest pyramid recorded in Peru as rising presumably from a plain.

On the other hand, the Late Chimu culture possesses in Chanchan, whose pyramids are relatively few and moderate in size, the largest described ancient city of the country. Chanchan extends two kilometers inland, and is a full kilometer broad. Its special features are enormous high-walled courts or "palaces," some empty and some filled with a maze of smaller walled structures; and "*pozos*," rectangular depressions down to the water table, too large to be called wells in English. Dr. Tello has in progress a study and preliminary survey of Chanchan which should soon make available a much needed plan of the whole city, the plans of Squier (pp. 152, 157, 159, 160) being of single courts, unplaced in the larger complex.

In the south Chimu province, nothing else comparable to Chanchan is known. In fact, the few other known Late south Chimu sites are without structures: Purpur in Virú, and the plain between the great huacas at Moche C.

In the northern province, which is all Late in pottery types, there are at least two aggregations that may be called cities. One of these is the Ciudad de la Barranca on the north side of the mouth of the Jequetepeque; the other the Purgatorio on the Leche at Túcume. Plates XX, XXVIII, and XXXI show views and sketch plans of these. Barranca is about 1 km. long and half as wide. It is most conspicuously a collection of huacas more or less arranged in two alignments (Plate XXVIII). None of these pyramids is great; but there are several times as many as in Chanchan. There is an enclosing wall with exterior ditch, extending from the river edge of the town nearly to its seaside

edge. Internally there are many walls which my plan does not show. Most of these are low; their slight thickness indicates that they could not have approached those of Chanchan in height. There is an internal ditch, probably for drainage in case of rains or wash from the *cerros;* but nothing like the Chanchan *pozos*. The "palace" courts of Chanchan, however, have their counterpart in the court P of Barranca, even to the numerous walls that fill most of its interior (Plate XX, Fig. 4). This court approximates those of Chanchan in size: about 170 m. on a side. Of everything I saw in the northern province, Barranca comes nearest in its resemblances to Chanchan, though it falls far short in size and differs in plan and many features. It is an important ruin, not much smaller in area than Pachacamac, and presents much of interest. If it contained a single huaca of the first magnitude, it would probably be better known. It should be designated by its proper ancient name, which I could not learn, but which research would probably recover. "City of the Cleft" is commonplace and unspecific as a designation.

The second large aggregation is the Purgatorio (Plate XX, Fig. 1) on an arm of the Leche at Túcume. This site evidently is the ancient Túcume, as Brüning suggests. It was not mentioned to me at Chiclayo or Lambayeque, although an insignificant Huaca Pintada not far from it was referred to several times. Brüning (I, p. 13), however, realized the importance of the Purgatorio; and it was on the basis of his statement that its ruins are "las mas conspicuas y grandiosas de esta provincia de Lambayeque" that I looked it up. As shown in the plan (Plate XXXI), it is primarily a complex of pyramidal huacas. As at Barranca, there are walls that are not indicated in my sketch; but the pyramids are large, set close together, and high. At that, there are walls, like that east of pyramid D, which approach those of Chanchan in height and massiveness. There is also an area of open courts, Q, and a larger area, P, filled with a labyrinth of walls. The adjacent area I is a vast raised burial platform, more or less divided by cross walls, and bearing two small huacas, Ia and Ib. The areas adjoining pyramid F on the east and C on the east are similar combinations of platform and walls. The general arrangement of the more important structures is along two axes at right angles, A–F and F–I. This arrangement contrasts with the parallel line-up of the main axes and intervening clear space at Barranca. A collection of pottery from the Purgatorio (Plates XXI, XXII) is of the usual north Chimu type. I regret that the setting sun put an end to my examination of this site and that return proved impossible. It is an important ruin, and an impressive one; more so perhaps than Chanchan, whose unrelieved interminableness tends first to stun and then to weary.

Dos Cabezas on the south side of the mouth of the Jequetepeque (Plate XVII, Fig. 2), opposite Barranca, perhaps occupies third rank among the northern clusters seen. Mocce is a group of pyramids, La Rajada a pair, and La Chotuna has high-walled courts and outworks. Description and plans of these are deferred to Part II.

BURIALS

Burial in extended position seems characteristic of the Chimu area. Having made no excavations, I must speak somewhat hesitantly. But the evidence is pretty consistent.

Uhle (Moche, p. 107, Fig. 12; reproduced in Kroeber, Moche, p. 196, Fig. 3) reported seated position in Early Chimu burials at La Luna, Moche. His published tomb plans show skulls and circular areas for bodies, though the length of the rectangular tombs might suggest stretched bodies. Similar tombs, adobe-lined, occur in Chicama valley in the cemeteries of the vicinity of Brujo and Salamanca beach, apparently Early Chimu. Local informants in Chicama usually spoke of burials as being both stretched and seated, and sometimes added "standing"; but the extended posture was emphasized most. At Virú, it was the only one mentioned to me. A child's partial skeleton which I found *in situ* at Taitacantin lay horizontal. At Chimbote and on the lower Santa Dr. Tello tells me that he saw and heard of extended burials only. In the north Chimu province, extended bodies were almost always mentioned in answer to my queries. The rifled tombs that pit the tops of most of the northern huacas usually seem oblong, so far as their shape can occasionally still be recognized amid the destruction worked by man and weather. Hrdlička (p. 8), speaking of excavations made by him in Chicama valley, says that the burials are for the most part simple, "the body being laid in the ground"; that "more elaborate mummy bundles" were occasionally encountered; that nothing pointed to intentional mummification as at Pachacamac; and that, as at Pachacamac, "burials in the contracted position were the rule." Bastian (Culturländer des alten America, I, p. 185, 1878) states that at Chimbote bodies are found both in recumbent and in squatting position. Tello (Antiguo Perú, p. 155) reports three extended bodies from Chongollape near the head of Lambayeque valley.

The significance of these indications is first that they seem to point to the same practice, or a similar variability, for all Chimu periods; and second that it leaves the frequent Chimu custom of horizontal burial paralleled in Peru only by that of the Early Lima culture. Following Uhle and Tello, I was at first inclined to suspect horizontal burials as Colonial, but this is no longer admissible for Chimuland.

SKULLS

Three skull shapes appear in the Chimu area—a longish type, natural; a short form, with more or less occipital flattening; a short and broad shape definitely distorted by fronto-occipital deformation. The first and third seem often to occur together in the same cemetery, wherever enough skulls have been left by *huaqueros* to allow of a judgment. This association is confirmed by Hrdlička, who excavated for skeletal material in Chicama, especially at Chiquitoy. Dr. Tello and I agreed that in many cases the fronto-occipital deformation is as pronounced as in the average Nazca culture skull, and of similar type. The forehead recedes; the occipital and the posterior parts of the parietals form

SHAPE AND INDEX OF CHIMU SKULLS

Locality	Cat. No.	Collector	Type	C.I.	L.	B.	H.	Sex	Age	Remarks
EARLY										
S. Clara, Virú....	171615	K	O	94.6	149	141				Skew
S. Clara, Virú....	171616	K	N	78.5	163	128				
S. Clara, Virú....	171617	K	N	75.4	167	126				
Moche, E.....	12–1781	U	N	81.7	169	138	133	F?	–25	WU
Moche, E.....	12–1782	U	N	82.9	164	136	130	F	–25	
Moche, E.....	12–1783	U	FO	106.5	138	147	127	F?	–20	WU
PROBABLY EARLY										
Facalá, Chicama.	12–1882	U	N	75.8	182	138	137	M	40	
Facalá, Chicama.	12–1883	U	N	79.2	173	137	142	M?	30	
MIDDLE										
Taitacantin, Virú	171608	K	FO	100.0	156	156				
Taitacantin, Virú	171609	K	FO	111.1	144	160				
Taitacantin, Virú	171610	K	FO	115.6	141	163?				
Taitacantin, Virú	171613	K	N	78.9	166	131				
Moche, A.....	12–1821	U	N	82.5	171	141	132	M	–25	WU
Moche, A.....	12–1822	U	O	87.6	161	141	139	F?	35	Skew
LATE										
Purpur, Virú....	171614	K	FO	97.4	156	152				
Moche, B.....	12–1767	U	FO	98.7	156	154	131	M	35	Skew
Moche, B.....	12–1769	U	O	82.7	173	143		M	50	
Moche, B.....	12–1772	U	O	87.7	156	137	126	M?	35	Skew
Moche, B.....	12–1774	U	O	87.7	156	137	123	F	–25	
Moche, B.....	12–1775	U	O	81.7	169	138	129	M	–25	Skew
Moche, C.....	12–1776	U	O	87.2	156	134	132	F	30	
Moche, C.....	12–1777	U	O	89.7	156	140	126	F?	25	WU
Moche, D.....	12–1811	U	FO	90.4	166	150	139	M	45	
Moche, D.....	12–1812	U	FO	87.6	161	141	138	M	60	Skew
Moche, D.....	12–1813	U	FO	89.4	160	143	124	M	60	Copper
Moche, D.....	12–1815	U	O	85.1	154	131	126		12	CU; Copper
Moche, D.....	12–1816	U	O	90.5	168	152	135	M	35	Skew
Moche, H.....	12–1784	U	O	87.8	156	136	129		15	
Moche, H.....	12–1785	U	O	86.1	158	136	130			Skew
Moche, H.....	12–1786	U	O	90.1	152	139	120	F	–25	WU
Moche, H.....	12–1787	U	N	78.0	168	131	131	F?	–25	WU
Moche, H.....	12–1789	U	O^{p}	78.4	171	134	128	F?	–25	Skew
Moche, H.....	12–1790	U	N	75.3	174	131	133	M?	–25	WU
Moche, H.....	12–1792	U	N	80.5	159	123	120	F?	–25	WU; Copper
Moche, H.....	12–1793	U	FO?	84.1	164	138	126	F?	35	
Moche, H.....	12–1794	U	FO?	82.7	156	129	123	M?	35	
Moche, H.....	12–1795	U	O^{p}	74.9	167	125	117	F	–25	WU
Moche, H.....	12–1796	U	O	86.0	157	134	120	M	50	
Moche, H.....	12–1798	U	FO	100.7	142	143	115	M?	–25	WU; Skew
Moche, H.....	12–1799	U	FO	100.0	147	147	116	M	–25	
Moche, H.....	12–1800	U	FO	89.7	155	139	118	M?	–25	WU; Skew
Moche, H.....	12–1801	U	FO	94.6	148	140	121	F	35	Skew
Moche, H.....	12–1803	U	O	89.5	153	137	131	F	40	
Moche, H.....	12–1805	U	N	73.4	177	130	131	F	35	
Moche, H.....	12–1806	U	O^{p}	74.6	169	126	134	F	–25	WU
Moche, H.....	12–1807	U	O^{p}	77.3	176	136	128	F?	–25	WU
Moche, H.....	12–1808	U	O^{p}	77.2	171	132	131	F	–25	WU
Moche, H.....	12–1809	U	O^{p}	78.7	164	129	126	F	–20	WU
NORTH (LATE) CHIMU										
Purgatorio, Leche	171506	K	N	74.0	169	125				

EXPLANATION OF TABLE

Numbers above 171000, in Field Museum, collected by Kroeber (K), measured by Professor Frank E. Wood; numbers with prefix 12–, at University of California, collected by Uhle (U), measured by Dr. A. H. Gayton and Kroeber. *Types:* N, natural, undeformed; O, occipitally flattened; O^p, occipitally flattened mainly in posterior region of parietals; FO, fronto-occipital deformation. *Measurements:* C.I., cephalic index; L, B, H, cranial length, breadth, height. *Age:* –25, 25 or younger. The proportion of youthful individuals from Moche is remarkable, and makes sex determination difficult. *Remarks:* WU, wisdom teeth not completely erupted; CU, canines not fully erupted; Skew, asymmetrical occipital region; Copper, green stains about nose, palate, or ear, due to copper ornaments, normally a sign of Late period. *Period:* Facalá is an unidentified site, but the majority of sites in Chicama are Early; Moche C is Late Chimu over R-W-B Geometric graves (Kroeber, Moche, p. 197); Moche D, probably Late (*ibid*); Moche H, probably Late, on the basis of textiles (O'Neale and Kroeber). *Addendum:* Uhle collected some fifteen skulls at "Cerro de Trujillo," an unidentified site (U. C. Nos. 12–1823–1841). Of these ten are natural, five occipitally flattened; two show copper stains about the mouth.

a nearly vertical plane, which is often heavily bilaterally asymmetrical. The second or medium-length type of skull is sometimes flattened, chiefly in the region of the lambda or above (parietally rather than occipitally). There is no indication of frontal pressure. This is the shape spoken of by Hrdlička as undeformed or deformed only by accident; and it is the type that prevails on the central Peruvian coast in Late cemeteries, except that on the central coast the main area of flattening is perhaps generally somewhat lower, on the occipital bone proper rather than on the posterior part of the parietals. Its associations in the Chimu area are also prevailingly Late.

The following are some observations: Chotuna, north ramp, a long skull; Taitacantin, Middle period, of forty or more skulls seen, the majority were deformed, many of them heavily so; but a minority were natural and long (see also list below); Barranca F, about ten skulls, deformed, most of them fronto-occipitally; cemeteries near the coast in the Brujo and Salamanca sectors in Chicama, most of them seemingly Early Chimu, fronto-occipitally deformed skulls associated with a small number of long natural ones (samples from both areas left with Tello); a Late Chimu beach cemetery south of the Huaca Negra near Brujo, no long skulls, deformation usual, but not always pronounced.

In the table on page 68, I have brought together measurements of nearly sixty Chimu skulls in Field Museum and the University of California, all of exact provenience and at least probable period. The cephalic index is given as a check on the observations of deformation.

I add a diagram (Fig. 1) showing the distribution of the three types according to cephalic index, irrespective of period. It will be seen that the mean of the natural Chimu skull is about 78. The mean of the back-flattened skulls is around 85; but if six Late specimens are omitted whose flattening is so high up (parietal rather than occipital, O^p in the tabulation, P in the diagram) that the head length is not affected, the mean is about 87. The mean index of all fronto-occipitally deformed skulls is 97, with a wide variability. But when these are segregated according to period, the Late skulls average 94, the Early and Middle ones the astonishingly high figure of 108.

When the data are condensed, they stand as follows as regards head shape:

	Natural	Occipitally deformed	Fronto-occipitally deformed
Early	6	1	1
Middle	2	1	3
Late	5	19	11

This suggests that the Early Chimu favored natural skulls; the Middle period people, fronto-occipital bandage deformation; the Late Chimu, occipital pad flattening. However, these are only preferential trends. Each of the three practices was known and followed in all periods. Still, it is of interest that fronto-occipital deformation seems to have been most prevalent, or most extreme,

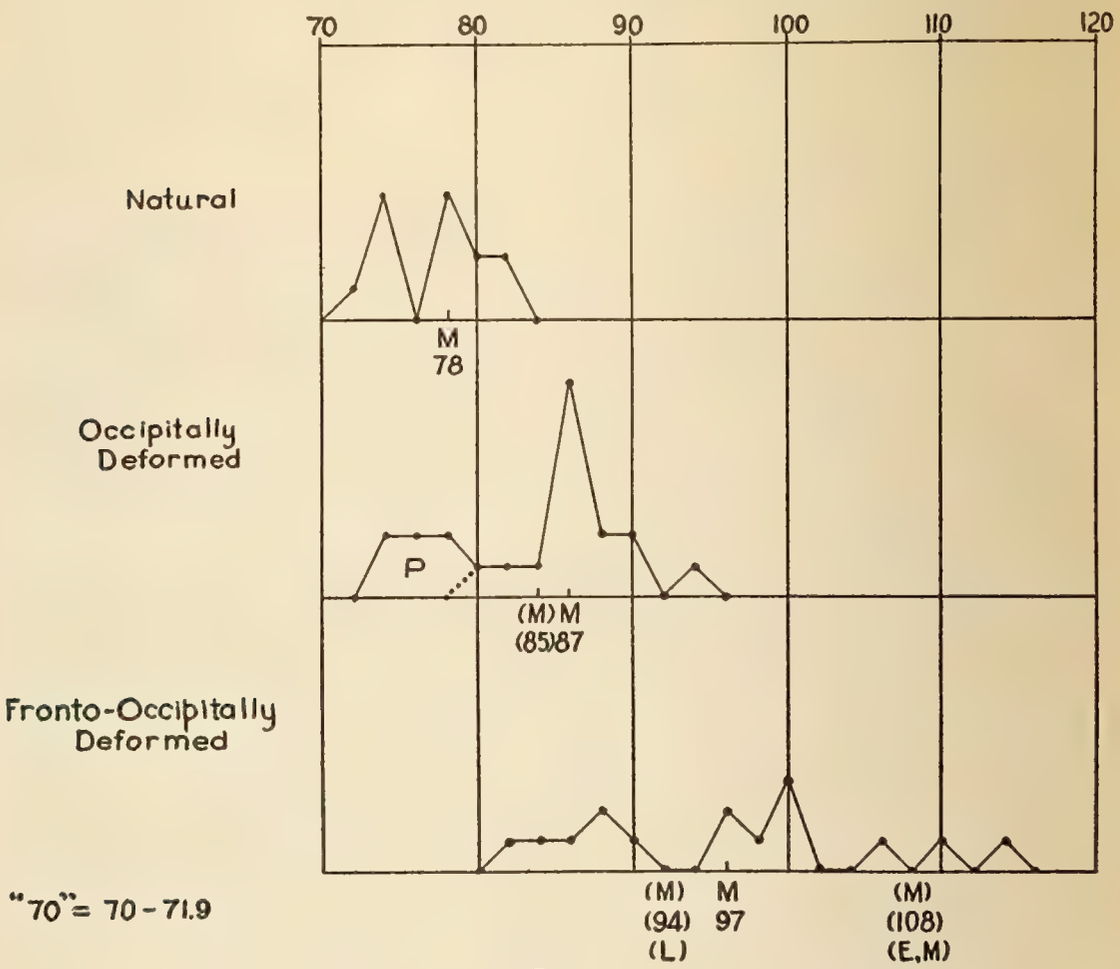

FIG. 1
Cephalic Index of Chimu Skulls

in the Middle period of highland influences. The series to be sure is small; but it is probably significant that the eleven fronto-occipitally deformed Late skulls range from 83 to 101 in cephalic index, the four Early and Middle ones from 100 to 115.

Hrdlička's suggestion of an early brachycephalic type which was replaced by a deformed one that included a long-headed strain of different origin, is inadmissible on the basis of the culture associations reported by him; though his data seem thoroughly correct. The sequence was rather the reverse, though custom was never rigid. The natural head form seems not to have changed in the Chimu area from Early to Late times.

As regards Peruvian skull shapes in general, the first need seems to be to distinguish the cultural problem of pressure and kind of deformation from the

biological one of congenital type. Obvious as this distinction is, it has not always been made. Uhle (Moche, p. 117), for instance, compares the natural long skulls of Early Chimu to the Nazca type deformed long skulls of Chincha and Ica. Of special importance are unselected series of some size. The skulls that drift into museums singly or in small lots have usually been preserved because they are extreme. Deformation, when its types and distributions have been worked out, promises to be an important and convenient criterion of culture classification, because of the ease with which cranial material is usually obtainable. The biological problem of Peruvian race classification on the other hand may be impeded by the difficulty of recovering natural types from areas and periods in which deformation prevailed. At any rate, attempts to link racial types and cultures are premature as long as the facts as to artificial deformation have not been adequately assembled.

MURAL PAINTINGS

In 1910 Seler (Abhandlungen, V, pp. 127, 132, Plate VII, Fig. 5) discovered a wall painting in the Huaca de la Luna at Moche. With the years, this has disappeared or been covered with drift sand. In 1925, parts of another wall painting were found in the same huaca. By November, 1926, some meters of wall had been cleared of sand, revealing a series of scenes, mostly of combats. Of these I traced the outlines, with indication of the flat colors in the contained areas. It is likely that further clearing of this part of the ruin will reveal other frescos. The newly formed Archaeological Society of Trujillo, under the presidency of Major Otto Holstein, plans to make the necessary explorations and reproductions, and will try to preserve the paintings from the ruin that has befallen those previously found.

The present set of paintings, shown in Plate XV, and in part from photographs in Plate XVI (see also Holstein, Figs. 31, 32), were executed by whitewashing the mud-plastered adobe walls, incising the figure outlines, painting the incisions black, and then filling in the areas with red, pink, yellow, light blue, and occasional black and brown in small areas. The style is typical Early Chimu, as known from the black (brown) or red on white (buff) paintings on stirrup mouth jars. The frescos give a freer rein to fancy than is usual in vase paintings. The strokes, as I soon learnt from following them through the tracing paper, are vigorous and unhesitating, the conceptions of form definite if somewhat conventional; the execution shows both imagination within the traditions of a school and skill based on practice.

The site of these paintings is the walls of the inner southeast corner of the highest structure of La Luna complex. This structure looks down southwesterly on the main platform at whose foot Uhle made his type excavation of Early Chimu graves (Kroeber, Moche, Plate 52*a*, background). The relative position of the paintings on the walls of the chambers which they line is shown in Plate XXVII, Fig. 1. The Arabic numerals in this diagram indicate the elevation in centimeters above the datum; the Roman ones, the sections of the paintings as traced.

It will be seen that more of the wall surfaces was once decorated than is preserved. The left or east end of Section I is outlined, but not filled in with color, as if the site, or at least the work, had been abandoned before completion. In several spots there are traces of underlying coats of plaster that had been painted on. It appears, therefore, that these rooms were repeatedly painted. It seems very probable from the position of the frescos that they were not confined to the limited areas in which they or the plaster now show. Somewhat off center in the painted stretch is a seat or throne-like elevation, whose floor has been taken as the elevation datum. The sides of this are flanked by a low wall in three steps, the two lower of which are painted on top as well as on the sides. This feature suggests that the niche between the salient step-walls contained an altar, idol, or seat. The total height of the frieze of painting nowhere reaches a meter, and on the sides of the steps is much less.

The white plaster is soft. The outlines were first scratched in with decisive, often long strokes. In cross section the incisions are wedge-shaped, not quite as deep as broad, but sometimes penetrate through to the underlying adobe coating which surfaces the laid bricks. Strokes that are meant to meet occasionally fail to do so, showing that the execution was free-hand and unhampered by meticulousness; the fact that strokes usually join well is proof of the practice and skill of the artists. The strokes were subsequently painted over with black, giving a definite but not over-prominent delimitation to the flat color areas which they enclose.

The colors, including black and white, number a total of seven. The commonest are red, yellow, and a light blue. Somewhat less frequent is pink. Black is used especially for feet or footgear, and, as in Early Chimu vase paintings, for knees; also occasionally elsewhere. White invariably forms the background and sometimes enters into the design. Brown was observed only in a few small areas representing artifacts, and seems to be the natural adobe. I suspect the red and yellow to be ochers; the pink a mixture of red ocher with the white of the plaster; and the blue a strong dilution of black (perhaps charcoal) with the same white. Analysis of samples may establish a greater complexity of pigments used.

The style of the art in these frescos, as well as the associations of the huaca of which they form a part, makes it certain that they are Early Chimu, and therefore well anterior to the Inca era. Whether the Late Chimu culture will reveal anything analogous, remains to be seen. The Chanchan arabesques are of adobe in relief, either outright geometrical or of simple figures treated geometrically (Holstein, Figs. 13–18, 21). They have close parallels in the adobe arabesques and paintings of the Centinela in Chincha,[1] and are therefore evidently characteristic of the generic Late culture of the Coast rather than in specific Chimu style.

[1] Uhle, Excavations at Chincha, p. 78, 1924. Others may have become exposed since Uhle's visit. I saw both frescos and adobe relief in 1926.

The subject of the Moche frescos is evidently a battle between human beings and personified implements. Krickeberg has recently shown that this "revolt of the artifacts" was a Peruvian as well as Mexican myth, that a Chicama stirrup mouth vase in Berlin depicts this contest, and that the Moche fresco described by Seler evidently had the same scene for its subject. Seler's principal figure of a personified war club is similar to that in portion IVc of my reproduction, but not identical. Seler's frescos are evidently also from the same part of the same ruin, but their precise situation was not fixed by him. The vase painting shows a dozen or more implements already victorious, two human prisoners, and a third besieged indoors. The frescos depict the battle itself, in a series of individual combats, with the artifacts winning; a helmet, a shield, a club, are smiting their armed but helpless human opponents.

II. DESCRIPTION OF SITES VISITED

COASTAL VALLEYS OF PERU

It seems desirable to preface this section with certain statistics on the rivers, valleys, and irrigable areas on which subsistence depended and still depends. Since these data are not always readily accessible outside of Peru, or to archaeologists, they will be given for some distance to the south of the Chimu area.

The coastal streams of Peru are classified into three groups. Those of the first class originate in the continental watershed, which, except in the area of the Santa, is always the most seaward of the Cordilleran ranges. Streams of the second class do not head at the continental divide, but draw their affluents from the zone of regular annual rains. Those of the third class head wholly or almost wholly in the zone of "periodic" or variable rains, and their flow is therefore both scant and rare.

The official classification of Peruvian coastal rivers is as follows, in order from north to south, and including the provinces of Tacna and Arica:

Coastal Streams of Peru
(After Adams, 1906)

Class 1	Class 2	Class 3
	Zarumilla	
Tumbes		
	Boca de Pan	
		Mancora
		Pariñas
La Chira		
Piura		
Olmos		
Leche		
Lambayeque		
	Saña	
Jequetepeque		
Chicama		
Moche		
	Virú	
	Chao	
Santa		
		Lacramarca
	Nepeña	
	Casma	
		Culebra
	Huarmey	
	Fortaleza	
Pativilca		
	Supe	

COASTAL STREAMS OF PERU—*Continued*

CLASS 1	CLASS 2	CLASS 3
Huaura		
Chancay		
Chillón		
Rimac		
	Lurín	
		Chilca
Mala		
	Omas	
Cañete		
		Tupará
Chincha		
Pisco		
Ica		
Rio Grande		
Lomas		
Yauca		
		Atiquipa
	Chala	
	Chaparra	
	Atico	
	Caravelí	
Ocoña		
		Manga
Majes		
	Chili	
Tambo		
	Moquegua	
Locumba		
Sama		
	Tacna	
Luluta		
Azapa		
Vitor		
Camarones		

The run-off in cubic meters of the principal streams in the Chimu area is given in the following table as condensed from the original monthly observations compiled by García in 1921. For comparative purposes there are added the corresponding data for certain of the rivers as far south as Ica. It is clear that the Santa, with its coastwise course and long intermountain basin, is by far the largest stream, although the coastal area irrigated by it is one of the smallest. The next two largest streams are the two northernmost, the Tumbes and La Chira, the first wholly within the zone of rains, and the second with an enormous catchment area in the mountains far from the shore. Next are the Etén-Lambayeque, the Jequetepeque, and the Chicama; the other Chimu rivers fall far behind. Several central coast streams, such as the Pativilca and Cañete, much surpass these three of the north, and others equal them in annual volume. It is also clear that the Chimu rivers normally irrigate a larger area than those of

similar size to the south, due evidently to the more open configuration of their lower valleys; and that important archaeological centers are often situated in valleys of relatively small run-off: Moche, Chincha, Ica, for instance.

RUN-OFF OF CERTAIN PERUVIAN COASTAL RIVERS
(After Garcia, 1921)

	Basin Km²	Irrigated Hectares	Years Observed	Run-off in Million M³ per Year		
				Aver.	Max.	Min.
Tumbes	3,380	0[1]	9:12–20	3,425	6,100	2,600
La Chira	12,500		6:12–17	3,473	4,200	2,900
Piura	3,000		6:12–17	525	760	130
La Leche	1,250	4,000	6:13–16, 19–20	241	390	150
Chancay (Etén-Lamb.)	4,000	30,000	8:13–20	971	1,200	750
Zaña	1,900	3,500	4:14–16–18	299	620	130
Jequetepeque	4,600	15,000	7:14–20	1,082	1,330	730
Chicama	4,200	30,000	8:12–16, 18–20	956	1,400	670
Moche	800	10,000	4:14,16–18	268	340	210
Virú	900	5,000	4:12,14–16	101	120	50[2]
Santa	11,500	5,000	4:12,14–16	5,093+	7,030+[3]	3,900
Pativilca		12,000	9:12–20	1,646	2,350	1,040
Huaura	3,400	10,000	9:12–20	921	1,180	680
Chancay	2,200	10,000	9:12–20	605	770	310
Rimac	2,500	18,000[4]	9:12–20	878	1,130	660
Mala	1,800	4,000	4:14,17 18,20	504	780	90
Cañete	5,200	14,000	9:12–20	2,173	2,840	1,380
Chincha	2,200	14,000	5:12–15,17	442	660	160[2]
Pisco	4,300	10,000	7:13–19	920	1,110	680
Ica	1,500	20,000	8:13–20	281	390	150

[1] Agriculture from rains.
[2] From Virú to Chincha the minima are all of 1912.
[3] December flow of 1916 not included for Santa.
[4] Besides diversion of water for use of city of Lima.

Another list is added from Adams, giving somewhat different estimates of catchment basins and irrigated areas of the streams from the Jequetepeque south to the Huarmey:

River	Class	Basin, Km²	Within Rain Zone, Km²	Under Irrigation, H	In Actual Cultivation, H
Jequetepeque	1	5,800	4,000	30,000	c. 15,000
Chicama	1	4,800	2,200	35,000	c. 17,000
Moche	1	1,950	800	10,000	c. 5,000–
Virú	2	1,500	900	5,000	c. 2,500
Chao	2	1,300	600	500	300
Santa	1	10,500[1]		5,000[2]	3,000[2]
Lacramarca	3	800	200	100	
Nepeña	2	2,500	1,200	8,000	4,000
Casma	2	2,600	1,300	c. 10,000	
Culebra	3	950	100	250	
Huarmey	2	2,700	1,700	2,000	c. 2,000

[1] Whole drainage; basin below confluence of Huaraz and Chuquicara, 800 km² only.
[2] Below confluence of Huaraz and Chuquicara.

VALLEY OF VIRÚ

The name is usually pronounced and written Virú. The valley does not head in the continental watershed, and is therefore rather short and poor in water. It is also narrow, and where it opens toward the sea is mostly uncultivated. The largest patch of intensive cultivation is around the town of Virú, largely in maize and pasture. Above is a ribbon of sugar plantation.

1. The Huaca Gallinazo, inland from the port of Guañape, as seen from the road is a fair-sized squarish huaca with a prolongation, perhaps causeway or ramp.

2. Purpur, farther inland, is a flat sandy site thick with sherds and shells, without buildings, but with an adjoining cemetery containing some adobe tombs. The pottery is obvious Late Chimu; the skulls seen were deformed.

3. The Huaca Santa Clara is an enormous pyramid towering above the town of Virú, and looks like a hill. It is an adobe structure set on a rock *cerrito*. So much adobe has washed down the slopes that considerable excavation would be needed to define the line of junction. The rock outcrops in a few spots only. It is likely that much of it was faced or concealed by walls of adobe. The top is small, flat, and has apparently not been washed down much. The total height must be between 50 and 60 m.; how much of this is hill is unknown. The sides are not steep, and terraces are recognizable with difficulty. The clearest view of them is had from the Castillo, nearly 2 km. away, too distant for ordinary photographing. Holstein (Fig. 28) gives an air photograph. There would seem to have been not more than three or four terraces; which is also the impression received from going over the flanks of the huaca.

On the lower and middle slopes are cemeteries, largely in refuse fill containing much coarse, broken pottery. Nearly all of this is red, but not a single decorated sherd was seen. The site however is probably Early Chimu. A small incurved bowl that was secured (Cat. No. 171618) and a fragment of a flaring bowl seen in a house at the foot, both said to have been taken out of the huaca, are pure Early Chimu. The graves are oblong, more or less lined with adobes. The few skulls visible were either naturally long or fronto-occipitally deformed and broad. The adobes are rectangular and flat-topped. Owing to the skilful advantage taken of nature, this huaca is astounding for its size and height. In apparent mass it is easily in a class with the Sun Pyramid of Moche; in gross height it rises 10–15 m. higher. To the eye it is perhaps the largest huaca in Peru; even as a net structure it is unusually large.

4. El Castillo is perhaps the boldest ruin on the north coast (Plate XVI, Fig. 1). There is an air photograph of it in Holstein (Fig. 36). It is upstream and across the river from Santa Clara, perhaps 2 km. distant, and crowns the end of a spur that comes off the *cerros* forming the northern side of the valley. The spur juts in toward the river, which bends somewhat about it. The structure thus dominates the valley both up and down, and certainly looks like a castle; but its area seems too insignificant for a fortress, and it is probably a good Chimu

huaca, unusual only for its eminent placement. Like Santa Clara, it merges into the hill on which it stands. The southern face especially has well-preserved retaining walls covering the natural cliff down to the level of the plain. Here the total height of construction must be in the neighborhood of 50 m.

The lower half of this face has stone walls among the adobe. None of the stones have been cut; but they are laid with their flat faces flush to form the surface of the wall, which is about as even as the adobe surfaces. In one spot a break shows the interior of these stone walls to be merely rough rubble, and some of them are carried upward with a sudden substitution of adobe for stone, without setback. All the faces slope, but not far from the vertical. The greater part of the hill facing, and all the pyramid proper, are of adobe. The bricks are flat-topped. They are set in columns or walls a few adobes wide. On the north face there remains part of a large exterior sheet only one adobe thick. Near the summit, stakes project horizontally in horizontal rows, and below one of these rows are two or three sticks laid lengthwise in the adobe; the falling of the outer layers has exposed these timbers, which may have served as ties. They are rather light stakes, twisted, apparently of some species of *algarrobo*. Those laid along the wall surface have not been observed elsewhere, and the projecting ones nowhere else in the southern province. In spite of some losses of surface, the preservation of this ruin is excellent and structural details can be observed unusually well. The Castillo is in far better condition than Santa Clara, perhaps because its steepness shed moisture almost instantly without letting it cut and wash. The front seems to be the eastern face; on the west is the spur connecting with the main *cerro*. This saddle or bridge has been built up with adobes so as to make the pyramid seem to extend to the mountain side and give it more of a fort-like appearance. But it is only an approach, and the amount of construction in it is rather small. Set on the plain without the natural substructure of which it takes advantage, the Castillo itself would be a good-sized huaca, but only that. As it stands, however, especially as viewed from the foot of its sheer southern face, it is one of the most impressive ruins of the Peruvian coast.

North of the spur causeway, on the lower slopes of the main *cerro*, is an exploited cemetery or town in an area of refuse fill containing quantities of coarse sherds. The seeming graves are rectangular, shallow, and more or less lined or outlined with adobes and stones; and are placed partly in small platforms that suggest house bases. No decorated ware was visible; but the absence of blackware, the similarity to the cemeteries of Santa Clara, and the statements of the guides concur in indicating this as an Early Chimu site.

5. Zaraque is the name of two *cerros*, a full kilometer apart, and across the valley from the Castillo, each of which is crowned with a small terraced structure of adobe. The upstream one has a similar structure at its foot. Zaraque, Castillo, and La Luna at Moche are alike in their conforming to rocky hills, a trait which I have not seen in Chicama or the north Chimu province. But it remains to be determined whether the trait is a local peculiarity, an Early Chimu one, or will appear also in the north when its broader plains are left

behind and the valley necks are examined. Virú and Moche after all are small and short valleys, crowded close by the mountains. It may be for the same reason—or on the contrary because cultural relations as such were different—that almost all the examples of highland ceramics yet reported from the Chimu coast come from these two valleys.

6. San Juan. Upstream from the Castillo about 1 km. is another evidence of highland influence: two stone huacas. These are pretty shapeless. Presumably the facing has been lost, and the interior rubble remains exposed. One of the pair has a lower platform toward the valley whose vertical sides are laid flush with the flat surfaces of large natural rocks, chinked with smaller stones. No pottery was encountered. These are the only stone structures I saw in Chimu territory.

7. Taitacantin or Taitacaltin lies south of Virú pueblo, just outside the main area of the valley's cultivation, in an island or peninsula of sand. *Taita* means "father" in Quechua. Final *-n* is almost invariably pronounced *-ng* in Peru. Proper names ending in *-n* are usually accented on the last syllable whether the accent is written or not; but Taitacantin has the accent on the penult. There is a small adobe huaca, still in the fields; no other visible structures; and 200 m. of cemetery in the sandy plain. The graves are shallow, apparently often under 1 m.; seem rectangular; are sometimes adobe lined, but perhaps more often not; a child's skeleton still partially *in situ* was extended. The skulls, of which many lay about from recent excavations, are for the most part fronto-occipitally deformed, often heavily, some resembling skulls with pronounced Nazca deformation. A minority were undeformed and long. A fair amount of copper was visible among the débris, but little cloth, and that coarse and plain, although sand favors textile preservation. The pottery fragments, which were abundant, showed a mixture of highland styles—Epigonal, Three-color Geometric, Cursive Tripod, Huarmey-Supe Epigonal, more or less hybridized—with black Late Chimu. The latter was not classic: stirrup mouths seemed lacking, and not a trace of an aryballos or Cuzco-influenced vessel was seen. The site thus appears to represent the intrusion of a highland population or culture in post-Early Chimu times and before the Late Chimu style was fully formed. After the recession of the highland wave, Late Chimu took on its usual or standard form with increased vigor of its coastal strain, growing supersedure of color by blackware, and final absorption of some Cuzco elements. Uhle had got the first indications of this intrusion from the interior, in the little lot of ware he was able to assemble from the south platform of the Sun pyramid (Moche A). Taitacantin enlarges the scope of this highland influence and will be most important to explore before the *huaqueros* have drained it. I came upon it, unfortunately, in the afternoon of my last day of exploration in Peru and had to content myself with samples of surface fragments which suggest what digging would reveal and clarify. Excavation is unusually easy. Probably the principal reason the whole site has not been worked over is that Chimu pottery, Early and Late, being standard in the region, it has become the fashion to collect this,

and the *huaqueros* may have found that they secured lower prices for the abnormal Taitacantin ware, which, like most highland ceramics, is not particularly fine in quality.

Despite its small size, Virú is obviously a valley of great archaeological interest.

VALLEY OF MOCHE[1]

Chanchan (Chanchán, Chan-Chan), the largest ancient city or cluster of ruins known in Peru, is fortunately being studied by Tello, as well as by the Archaeological Society of Trujillo, with a view to the preparation of its plan, which, even if only in outline, is badly needed to give an idea of the complex as a whole,[2] and in order to allow the placing in this vast whole of the relatively small sections long ago plotted by Squier.[3] I therefore made no systematic studies at Chanchan and will confine myself to a few observations.

As compared with other cities or clusters of ruins in the Chimu area, Chanchan is conspicuous for its poverty in pyramidal huacas. There are only three of much consequence, all situated on or near the peripheries of the complex of large walls. The largest of these seems to be the Huaca Obispo or Esperanza (Holstein, Figs. 2, 26) at the inland edge; the two others are the Concha and the Toledo or Peje Chico on the Trujillo side. None of these would be specially conspicuous elsewhere in the Chimu area. In addition, there are smaller huacas respectively at the southeast corner and near the middle of the city, for which Tello gave me the names Chaichac and Olvidada. This is an aggregate of pyramids much less in number than the smaller city of Barranca contains; and smaller in number and no greater in size than those standing in close array in the Purgatorio. On the contrary, Chanchan is unparalleled in the abundance and size of its "palaces" or courts, in the consistent height of their enclosing walls, and in its great *pozos* or rectangular depressions. Barranca and Purgatorio attain each to only one large court, and lack *pozos*.

The reasons for this uniqueness of Chanchan can be conjectured only partially. The *pozos* were probably made possible by the situation of the city on a low plain near the sea. The so-called palaces, whatever they may really have been, are possibly to be connected with the tradition that Chanchan was a political center and a late one. The paucity of pyramids is harder to understand, because domination was so strongly associated with religion in Peru, from all that is known, that a merely political or economic center of importance would seem anomalous. It is conceivable that a change of cult habits occurred. It is certain that in Virú and Moche valleys there is no Late Chimu pyramid to compare with the Early Chimu ones of the Sun, Santa Clara, or Castillo. As the Late culture and evidently dominion were much more extensive than the

[1] Also known as the Valley of Santa Catalina, but not as that of Trujillo, the principal city. Moche (cf. Mochica) is the name of the river, as well as of a town.

[2] Of much value are air photographs, of which Major Holstein reproduces several in his Chan-Chan (Figs. 2, 3, 26). He gives also an excellent series of ground views, large-scale and detail.

[3] Cf. p. 65. Wiener gives a plan of the whole of Chanchan, but this is obviously schematized, over-regular, and without value.

Early, the difference looks significant. In Chicama, very few of the huacas have been distinguished as to age; but the facts that rather more than half the potteries collected there are Early, that the Huacas Blanca and Brujo are almost certainly Early, and that the other pyramids of the valley conform superficially to these two, make it seem likely that Chicama will prove to resemble Moche

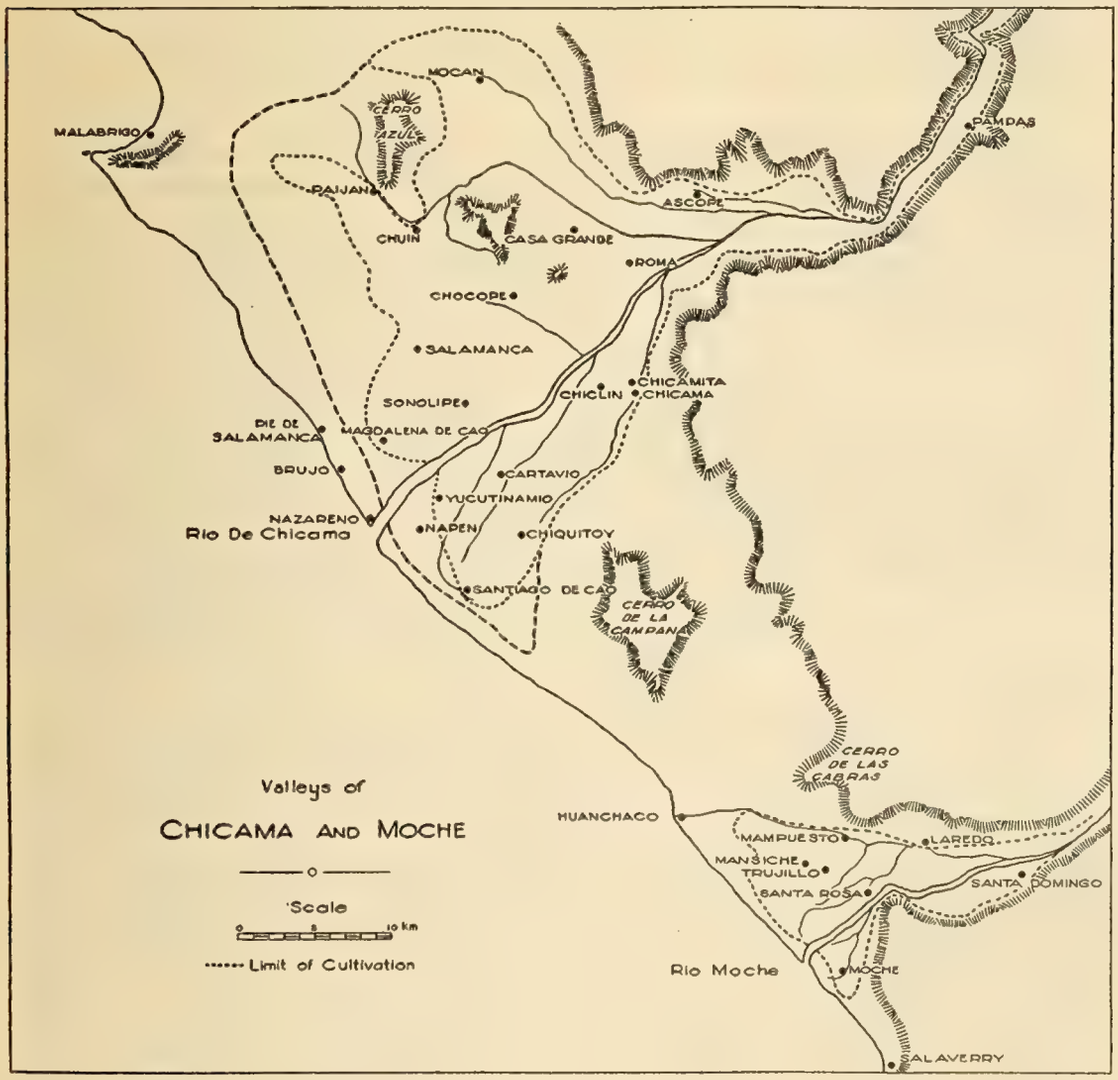

FIG. 2

and Virú in possessing no great number of large Late pyramids. In short, the Late Chimu culture where it is known to have been Late in time, was apparently falling away from the Early habit of concentrating its constructive ambition on gigantic religious heaps. The northern province cannot yet be equated, because it is Late Chimu in type but undetermined as to age. Still, even this has no single structures equal to those of Moche and Virú.

The tongues of land between Chanchan and the sea, jutting into the marshy land behind the beach, can be set down as partly artificial. They may in origin

be *quebrada* mouths; one, to the southwest of the town, still is such. But they have certainly been not only dressed or faced, but squared into shape. Plate XVII, Fig. 1, shows the artificial character of the sides. These are the tongues that Middendorf (II, p. 375) construed as dikes for the disembarkation of ships when the land lay closer to sea level than at present. The idea is probably as fantastic geologically as it is culturally; but it reflects the observation that the protrusions are associated with the city plan and are due to the shaping, if not the product, of human labor. They bear cemeteries, and contain several of the *pozos*.

Chanchan is not oriented to the cardinal directions. I was able to take a compass observation in the long street (this may be the street shown in Holstein, Fig. 12) that separates two quadrangles, on the Trujillo side of the ruins, which Tello proposes to name after Uhle and Bandelier. These courts run approximately in the same directions as the other principal ones, and therefore presumably as the city as a whole. The street in question sights directly at the Cerro Blanco, at the foot of which stand the Sun and Moon pyramids of Moche. Its direction is from about 12° north of magnetic west to 12° south of east. From about its middle point, the Huaca Obispo is 12° east of magnetic north. The declination of the compass is between 11° and 12° east. This would make the orientation of the major axes of the town about a quarter of a right angle off the cardinal directions. The long axis, extending inland, is from N.NE. to S.SW.; the breadth, or sea frontage, runs W.NW. to E.SE. Trujillo lies a little inland of the line between Chanchan and the Moche ruins—that is, nearly due east of Chanchan.

While I had no compass available at other sites, and directions are difficult to estimate accurately in the tropics during the greater part of the day, I have the impression that many Chimu ruins are oriented with similar departures from true north. The Sun pyramid is well off its general north-south axis; the Castillo is only approximately oriented; and Barranca seems to depart as much as Chanchan from the "natural" directions. The Purgatorio, Chotuna, Etén, Estacos may be more regularly placed, but my arrows in the diagrams of them must be accepted as only approximate.

VALLEY OF CHICAMA

The Chicama has a catchment basin, a run-off, and an irrigable area from three to five times as great as the Moche. In Chicama valley lie a series of the largest and most productive sugar plantations in Peru; yet it contains no town of consequence, and is commercially tributary to Trujillo. This modern condition reflects the ancient cultural relation of the two valleys, without a geographical cause being apparent. Chicama must have supported several times the population of Moche valley, and is studded with good-sized huacas; but it contains none as great as the Sun pyramid, and no trace of a town comparable to Chanchan. One bit of ancient history can be reconstructed. The Early Chimu built no towns of adobe; not one such has been identified. In Late

Chimu times, at any rate toward the end of the period, Chanchan became the political capital of a long stretch of coast. Chicama came under its domination. Being the nearest valley, it was probably the first to be subordinated, and thereafter possessed the least need of a local subcenter. Proximity and direct dependence on Chanchan thus kept Chicama undeveloped as regards Late towns, and perhaps Late temples also; while Jequetepeque and Lambayeque and Leche maintained provincial centers of some importance. The cause of the politico-military dominance of Chanchan is unknown; but there seems little doubt that it affected Chicama adversely.

Collections from Chicama, like the splendid one of D. Rafael Larco Herrera, contain more Early than Late Chimu vessels. The pyramids and mounds which I was able to examine on the spot through the courtesy and assistance of his son, D. Rafael, were, so far as identifiable, all Early Chimu. I saw only one Late Chimu cemetery, and that small and without structures. These indications, slender as they are, suggest a greater prosperity of the valley in Early than in Late Chimu times, in accord with the interpretation just developed. It may be that Chicama was overshadowed from the north as well as the south in the Late period. Its flourishing condition in Early Chimu times, indicated both by the number of its huacas and by its wealth in the finest pottery—much that the older collections labeled as "Trujillo" is surely from Chicama—seems at first surprising in view of its being on a cultural periphery: Early Chimu has not been found to the north. Yet it may be that political units were relatively small and independent in the Early period, so that the marginal position of Chicama might not have worked seriously to its disadvantage.

So far as can be judged at present, Chicama seems to have been less subject to cultural influences from the highland than Moche and Virú. Sr. Larco's collection of about a thousand pieces of ceramics, assembled in 1926 almost wholly within the valley, serves as an example. It contains more Early than Late Chimu. There is only one Chavin-influenced vessel: an unornamented, brownish stirrup mouth of pure Chavin shape (No. 1 of this volume, p. 36, Plate XII, for the style). There are several Cursive Modeled style pieces (*ibid.*, p. 31, Plates III, IV); none of what I have called red-white-black Recuoid (*ibid.*, p. 34, Plate V, Figs. 1–4); one three-legged bowl, very similar to the specimen in Field Museum (*ibid.*, p. 31, Plates V, Fig. 5; XI, Fig. 4); no piece in the Three-color Geometric style; and nothing that could be called Tiahuanacoid or Epigonal of the central Peruvian type. There is one cylindrical goblet, but it has an out-turned rim and an Inca pattern. Collections like this one are heavily selected for quality, but only indirectly for kind of ware; and the run of styles in this case is probably indicative in some measure of their relative frequency.

Hrdlicka (Plates I, IV, Fig. 2) obtained two tripod bowls in highland style near Chiquitoy, and a Tiahuanacoid pottery cat-head at an unspecified site in Chicama. These are the only Middle period style pieces on record from Chicama, and are the most northerly yet reported on the Peruvian coast.

The valley of Moche has Huamachuco behind it in the Sierra; that of the Jequetepeque, Cajamarca; Chicama, no considerable town. This modern condition may reflect an ancient one and partly account for the weakness of highland influences in Chicama.

Chicama huacas usually stand isolated, not in complexes, though they show a tendency to cluster in tracts. The northern half of the valley contains fewer

than the southern. Terraces are narrow and steep without aiming at the vertical. A relatively small amount of decay thus suffices to give them a sugar-loaf shape. This is accentuated by the fact that they seem to average higher in proportion to the base area than mounds farther north. Weathering and rounding are most visible close to the beach, suggesting that the atmosphere affects the surface more than the rare rains.

THE BRUJO GROUP

Brujo is a fishing village a few kilometers "north" of the mouth of the Chicama River. It stands at the northwestern corner of a curious rhomboidal plateau, 10–15 m. higher than the low and sometimes marshy plain that backs it. This plateau is of loamy sand containing considerable saltpeter. At one corner, towering above the fishermen's huts, is the Huaca Brujo; at the inland corner, the still larger Huaca Blanca; at the southeast corner, by the shore, the Huaca Negra; a fourth corner, considerably rounded, projects somewhat into the sea. The Brujo is half surrounded by cemeteries. The whole stretch from Blanca to Negra is a succession of gravefields and burial mounds. Although the three huacas are part of a topographical unit, they are 1 km. or more apart and can scarcely be considered a true aggregation or complex.

Huaca Brujo is perhaps 18 m. high; built of whitish adobes; apparently with leaning rather than vertical sides, which are now much rounded off. The cemetery at the landward side seems Early Chimu, with oblong tombs. A gash made nearly to the center of the pyramid—to secure adobes, it is said—reveals the structure. This cut is 6 m. wide. Its side surfaces are smooth, showing that joint planes were followed in making the cut. When these planes are examined, they prove to contain vertical joint lines 1–2.5 m. apart. These are evidently the edges of other joint planes proceeding at right angles. The two sets of joints enclosed solid adobe columns or thick walls, ranging from one to several meters on a side; these are the structural units out of which the pyramid was built up. A smaller cut nearer the sea side shows the same construction. No continuous adobe or refuse fill is visible. It is a different method of construction from that usual on the central Peruvian coast.

Huaca Blanca is at least 20 m. high, perhaps 25. From slopes higher up in the valley, this and the Brujo appear like nearly equal towers at the ends of a long substructure—the natural plateau. The adobes are whitish and much disintegrated to the weather; the sides steep; the top rounded. Near the inland foot are walls and a cemetery. These may belong to the huaca, but I could not wholly rid myself of the suspicion that they may be Colonial. Near the opposite foot of the pyramid begins a series of cemeteries, which follow the edge of the plateau to the beach and the Huaca Negra. These cemeteries lie in sand, in habitation refuse containing charcoal and ashes, and in low mounds. Some of the burials are in sand, others in adobe-lined oblong tombs. Some of the cemeteries are certainly Early Chimu. Others seem to be Late Chimu. Some may be early Colonial. The local distinction is into cemeteries with cloth but little

or no pottery, and those with good pottery and little cloth; which suggests Late and Early. The bodies were described as lying, seated, and standing, according to site. Nearly all the cloth seen was coarse white, without ornamentation. The adobe tombs seem chiefly associated with Early Chimu sherds; but fragments are nowhere common. Skulls in one of the Early Chimu sites were either fronto-occipitally deformed, or natural and rather long.

Huaca Negra is the smallest of the three pyramids. It is damp from the sea, and blackish as if burnt, inside and out, from humidity and abundance of pulverized shell and organic matter. It is not an adobe structure, but a refuse mound, apparently reared at least in part with intent. A large gash into the top, attributed to Chilean treasure hunters, shows the mass to consist of shell, ashes, soil, and beach cobbles, often visibly laid or stratified; the refuse includes badly weathered sherds to a depth of several meters, possibly to the bottom. The appearance of the material is much like that at Lomas on the southern coast. The pile is, however, obviously shaped, not a mere accumulation of refuse, and may therefore be considered a huaca.

Beyond the end of the table-land at Huaca Negra, across a marsh slough, and in the sand back of the pebble beach, is a Late Chimu cemetery with slightly shortened skulls, copper-stained teeth, and many fragments of copper on the surface. There are no associated structures.

SALAMANCA AND SONOLIPE

Salamanca beach, up coast from Brujo, has several low sandy burial mounds among the dunes back of the beach itself. Early Chimu ware is associated with rectangular adobe tombs; lack or scarcity of pottery, with burials in sand. The latter may represent poor people or a different period. There is some copper about the Early Chimu tombs; also, large water-jars, 90–100 cm. high, 70 cm. in diameter, the upper half cylindrical, the lower spherical, the two portions either continuous or marked by a slight increase of diameter upward. The Early Chimu skulls are both naturally long and fronto-occipitally shortened. There are no associated structures.

The Huaca del Ollero, "of the potter," is a sandy mound near the Salamanca hacienda house, thick with opened adobe graves and Early Chimu débris. The skulls are both fronto-occipitally deformed and naturally long.

The estate of Sonolipe, on the north side of the river like Brujo and Salamanca, but now administered from Cartavio, contains a huaca which I did not identify but which is reckoned by some as the tallest in the valley. It is said to have a hole sunk in its top—presumably a treasure excavation enlarged by rains.

CARTAVIO, CHIQUITOY, AND VICINITY

Cartavio, a large property, contains several large huacas. Cartavio 1, or the Huaca de Disputa, so named because of a contested boundary, is set in the middle of a large quadrangle surrounded by a broad wall of adobes. The huaca

is large, oblong, four-terraced, steep on the sides and flat on top, and apparently a solid mass of adobes. The terraces are narrow. It lies south of the railroad from Cartavio to Chiclín, and seems the largest of the Cartavio huacas.

Cartavio 2, or Huaca Urcape, is north of the road from Cartavio factory to Santiago de Cao.

Cartavio 3, or Huaca Colpán, is also north of this road, nearer the sea. It has a conspicuous, long, inclined projection on the seaward side. This ramp is said to have contained burials.

Cartavio 4 is south of the road and approximately cubical. It is said also to have a ramp with burials, but on the side away from the ocean.

Below Colpán, on the beach between Santiago and the river mouth, several small mounds or huacas are reported to contain black pottery; that is, to be Late Chimu.

A small huaca, entirely of stone and containing "some silver but no pottery," is reported at Salpán or Section 20 of Cartavio, across a bend of the railway running from Cartavio factory to Chiclín. I owe this information, as well as other statements supplementary to my hasty inspection of Cartavio ruins, to Mr. C. MacDougall.

The Pan de Azucar ("sugar loaf") is a steep-sided squarish huaca rising perhaps 20 m. out of the cane cultivation near the boundary between Chiquitoy and Chiclín.

The Huaca Chicamita is a similar pile, also near the "southern" (actually more nearly eastern) edge of the cultivated valley, but farther upstream.

Near Santiago de Cao, and still nearer the junction of the road from Santiago with that from Chiquitoy to Huanchaco are three mounds, known as Las Tres Huacas. The largest of them is called also Huaca Campanilla.

On Chiquitoy, south (east) of the road from Huanchaco, is a good-sized huaca. Chiquitoy is said to contain several others. Hrdlička (p. 7) says there are many huacas and cemeteries in the vicinity, and seems to have excavated largely at Chiquitoy.

From Virú to Chicama the majority of huacas are Early Chimu, and observation and reports coincide in ascribing burials to their lower platforms or ascents but not to the top. Beyond Chicama, in the northern Chimu province, where the only known culture is Late in type, burials seem characteristic of the tops rather than of side terraces. For the Late huacas of the southern province, data are wanting, the principal ones, those at Chanchan, having been torn to pieces. This very sacking from the top, however, suggests burials in the summit, and perhaps in the mass, of the Late Chimu southern structures.

VALLEY OF JEQUETEPEQUE

The valley of Jequetepeque has three parts. The middle portion lies along the river, is rather narrow, and with its mixture of sand dunes, palms, and fertile spots is in places reminiscent of Ica, hundreds of miles south. A second portion

lies to the south, toward and around San Pedro de Lloc, and is watered by acequias that leave the river toward the left. Pacasmayo lies in this southern part but is without immediate agricultural hinterland and owes its existence and importance to being the port for the valley and for Cajamarca in the highland. The third portion of the valley also lies off the river, but to the north, about Chepén, Guadalupe, and Pueblo Nuevo. The last named is on the Rio Seco de San Gregorio; Chepén and Guadalupe are rather nearer to that stream bed than to the Jequetepeque; but the water supply of the whole tract seems to derive chiefly from the Jequetepeque. The Guadalupe sector is said to produce more today than the Jequetepeque one; but the most important ancient sites are in the middle sector near the natural mouth of the river.

PACASMAYO-SAN PEDRO DISTRICT

Sinán, pronounced Sináng, is an isolated huaca about 2 km. from the beach, 3–4 southeast of Pacasmayo, toward San Pedro de Lloc, in a brushy pasture pampa, not far from cultivation. There are no outworks or surrounding cemeteries. The pile is 75–80 m. square, about 10 m. high, and built of adobes. It has been dug into and washed. No terraces are discernible. The whole top appears to have been a cemetery. The type of ware is Late Chimu, with more undecorated red than black sherds in evidence, as usual. This is the most southerly site at which I encountered red ware paddle-marked in imitation of textile impressions. Uhle found paddle-marked blackware in the Late Chimu cemetery, site B, at Moche (see Part III).

JEQUETEPEQUE DISTRICT

Near the town of Jequetepeque, shortly before it is reached by road from the south, is a large cemetery without structures. Copper is especially abundant among the débris.

For several kilometers of its lowest course, the Jequetepeque is bordered on its north by a conspicuous barranca or bluff, while the south side is low. On this low side, near the mouth, stands a group of pyramids known as Dos Cabezas, from the shape of the highest unit. North of the mouth, on the mesa above the bluff, is a large city for which no name was learned other than Ciudad de la Barranca.

DOS CABEZAS

The principal structures in the Dos Cabezas group are shown in the plan, Plate XXVII, Fig. 2. The estimated heights above the plain are as follows: A, the Dos Cabezas huaca proper, 25 m.; X, a narrow, long, adjacent platform, 7 m.; wall adjoining, 10 m.; cemetery platform, 5 m.; Y, two-level platform, 8 m.; B, a steep huaca, 12 m.; Z, adjacent platform or sand hill, 7 m.; C, small huaca, 8 m. This group is about 0.5 km. from the beach, in sand. A little nearer the sea and close to the river is D, La Mesa, a large squarish platform about 12 m. high. Huaca A literally has two heads (cf. Plate XX, Fig. 4, background), with a tongue-like platform issuing from between them. This tongue is probably

material carried out from a great gash made into the top of the pyramid by treasure seekers, who thus produced the two heads. This is also the conclusion of Middendorf (Peru, II, p. 403). An hour's digging in the tongue would reveal whether it was actually a dump of tumbled adobes, or a platform of laid adobes forming part of the original structure. In the latter event the construction plan of the huaca would be unique. There is no fill visible in the main part of the

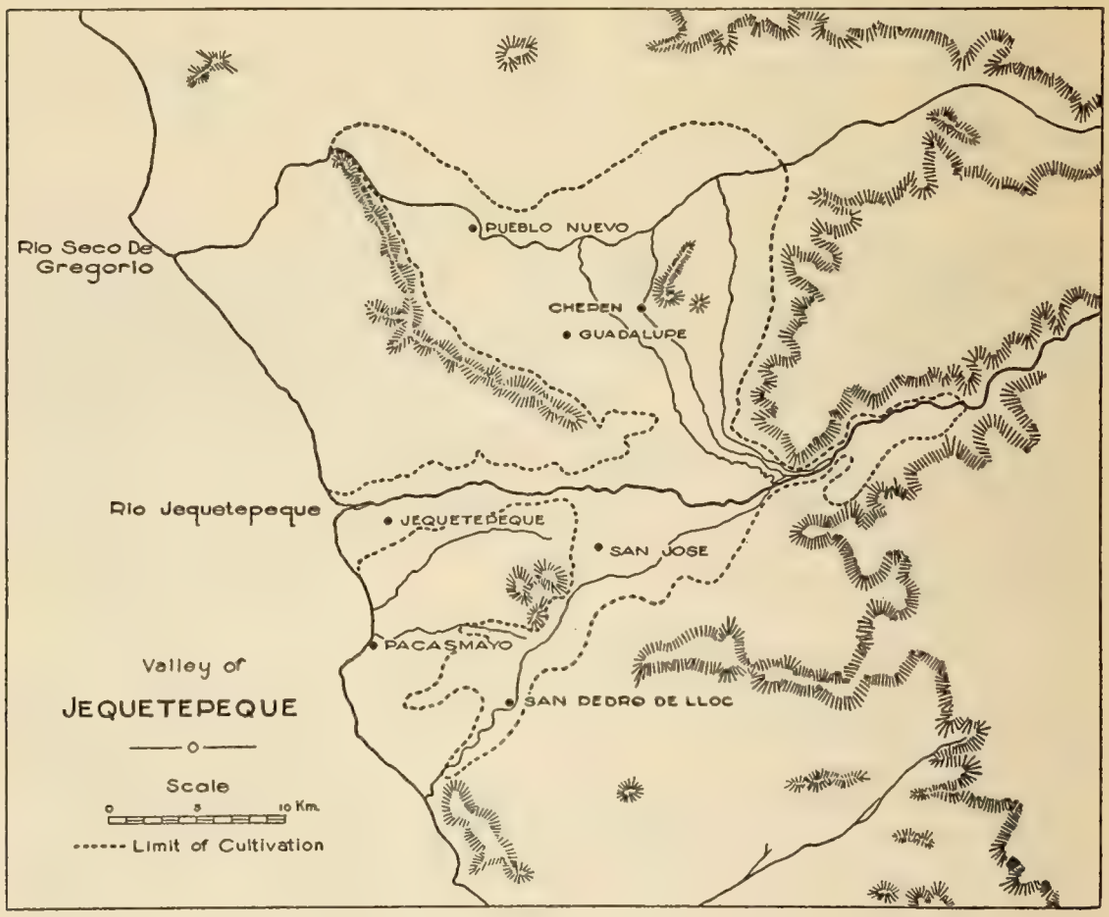

FIG. 3

pyramid, only adobes, normally laid flat. There are some sherds, probably from the mortar. The main cemetery, well dug over, shows débris and copper of the usual north province type. This is an impressive group of ruins.

CIUDAD DE LA BARRANCA

Ciudad de la Barranca is a collection of pyramids, walls, and courts stretching from the bluff above the Jequetepeque to one overlooking the sea, and shut in on the third side by a wall of adobes and a ditch carried across the mesa. The length is a full kilometer, the breadth more than half. It is a smaller city than Chanchan and Pachacamac, but one of the largest on the coast of Peru. Middendorf (Peru, II, p. 404) saw this group of ruins from Dos Cabezas, but

could not cross the river to inspect it. The plan in Plate XXVIII is an attempt to survey by pacing the better preserved eastern or southeastern half of the town. The northwestern end is much more crumbled and rounded, owing either to greater age, different construction, or, probably, greater exposure to the sea air. The plan gives a fair idea of the layout of the town, and many of its details are exact, but others are only approximate. The ancient builders seem to have deviated occasionally from right angles and straightness of long lines. The deviations are scarcely observable as one stands in any one spot among the ruins, but they accumulate considerably in the passage to farther structures. A really accurate plan can hardly be made without triangulation or air photographs. Until such are available, the present diagram may be of service.

It will be seen that the numerous huacas are mostly grouped in two alignments, separated by a long plaza or avenue well over 100 m. wide. On one side are H, I, J, and smaller piles; on the other, A, B, C, D, and F. Behind A is a high-walled court, P, about 170 m. a side, but not a true square; filled, for the greater part of its area, with numerous building walls (Plate XX, Fig. 4). This court is similar to several at Chanchan; but the lining up of groups of pyramids at Barranca has no parallel at Chanchan, whose huacas are few and separated. On the whole the Purgatorio at Túcume is nearer to Barranca in general plan, but with considerable differences, as will be seen.

The outer wall measures about 735 m. (by pacing) from its beginning at the bluff edge to where a wash from the hills on the inland side of the mesa has broken through. Beyond the break the wall resumes. Outside of it is a ditch, which may have served for drainage rather than defence. Another ditch lies in front of the inland side of the huaca row F-B-D.

Huacas A, C, G are highest at their rear—the southwest or river mouth side. A, C, H have projecting ramps on the opposite or northeast face. Both these features recur repeatedly farther north, as at Estacos and Etén. Huacas B and D are large, low, and one-storied, like Sinán and Purgatorio I. The court P contains in its southeastern half three buildings, N, N, N, with rows of "seats" or roofless niches along their inner walls.

Many low walls and small chambers and structures have not been entered in the plan.

GUADALUPE DISTRICT: ESTACOS

Huaca de los Estacos stands isolated in the cultivation on the right hand of the road from Guadalupe to Pacanga and Pueblo Nuevo, near Pacanga. Its plan will be clear from Plate XXX, Fig. 1. It has two ramps; one juts out eastward from the lower eastern platform, the other runs up along the northern face of the main huaca to the higher western platform. The three terraces of this platform or main structure are so narrow as to be only nominal. Walls trisect and surround the top, which once contained graves. The adobes are slightly rounded on their tops only. The name of the huaca is attributed to

several stakes on poles that formerly rose from its summit. These may have been post-Columbian.

ANCIENT ROAD BETWEEN JEQUETEPEQUE AND SAÑA

The divide between Jequetepeque and Saña valleys differs from those which separate valleys to the south, and is the first of northern type. It is a long smooth swell instead of a mountain spur, and it bears some vegetation instead of being pure desert.

It is of further interest because the road between the valleys follows and in part runs over a prehistoric road. One hears much of Inca roads in Peru; but in the coast area their authentic remains are scarce. In the interior, according to all accounts, they are better preserved. The Pueblo Nuevo-Saña road is the only one I have myself observed which is indubitably pre-Spanish. There is one which is probably prehistoric between Ocucaje and Huayurí, connecting the Ica and Rio Grande drainages. This passes across a wide, nearly level, desert pampa, and is marked by a border of stones taken out of the broad roadbed. It has been traversed by countless burro trains and more recently by automobiles, so that its ancient condition is difficult to judge.

The Saña road is first picked up a little out of Pueblo Nuevo where the car ruts enter it, about where the last cultivation fringes out. From here it runs northerly, perfectly straight so far as I could determine, almost to the edge of cultivation in Saña, more or less abreast the pueblo of Saña. As I estimated its several stages piecemeal, they aggregated 14 km. The map, however, makes the whole distance considerably longer, and so it seemed as I traversed it.

The southern part of the road is 6.5 m. wide and forms a callejón, that is, a walled-in way. The walls are half a meter thick, of rectangular adobes, and in places still stand 1.2 m. high. The purpose of the walling is not clear. It was evidently a culture habit of ancient as of modern Peru. Some kilometers out, the desert becomes sandy, the side walls disappear, and the road can no longer be traced with security. Over the divide it resumes, apparently in line with its first part. Here the pampa is rocky and the road is half as wide again as before, namely 10 m. The construction consisted of taking all loose rock out of the roadbed and piling it in two low side walls. Each wall consists of an inner and an outer row of the larger stones set lengthwise on edge, about a meter apart, and smaller stones laid or thrown between.

Abutting directly on the road are four tambos—rest houses or post-stations. The two southerly are of adobe, the two northerly of stone, like the adjacent parts of the road itself. Nos. 1 and 4, the largest, are less than a kilometer out of the cultivation. Nos. 2 and 3 are about two or perhaps three kilometers farther out in the pampa, and considerably smaller. Much the longest stretch of road is between tambos 2 and 3. Diagrams of all four are shown in Plate XXIX. The eastern wall of the main court of No. 1 contains three rows of square adobes alternately sunk and flush with the wall surface, forming a simple checker pattern (Plate XXIX, side).

MEASUREMENTS

I was able to pace out some of the principal dimensions of these four tambos with fair accuracy. It appears that Nos. 1 and 4 are both laid out on the plan of a square plus an adjoining section one-third as wide, on the formula (3x3)+(1x3)=(4x3). Their subdivisions, however, do not fall into simple proportions; and Nos. 2 and 3, as well as the second court of No. 4, are laid out on different plans. Even the large decorated inner court of No. 1 measures about 56 by 60 m.

The stone and adobe walled portions of the road have widths respectively of 3:2.

I was unable to find here or elsewhere any certain indications of standard units of measure generally employed, like the meter, fathom, or surveyor's chain. The general plan of No. 1 has evidently a 12 or 24 m. length as base; but the structure in detail does not conform to either fractions or multiples of this length. It seems more likely that a piece of cord was arbitrarily chosen as the unit for this particular construction than that a conventional measure was used.

Mere walls such as these are of course more reliably measured without clearing than pyramidal structures whose bases and terraces are encumbered by talus. Nevertheless the approximate dimensions given in the various plans in this report ought to reveal some tendency to either standard measures or standard proportions if these existed. Apart from occasional square or 4x3 ground plans, as several times at Barranca, I cannot discern any regularity. There seems no more indication that the Peruvians used constant standards for the sizes of their courts and buildings than for their adobe bricks.

In this connection it is of interest that while the balance was of frequent use in Peru, there is as yet nothing known that can surely be interpreted as a weight, of fixed mass or otherwise.

VALLEY OF SAÑA

This valley is narrow, and in the region of Saña its water suffices chiefly for maize and pasture. Cayaltí, farther up, is a large hacienda, whose prosperity is no doubt correlated with the poverty of Saña. There are no ruins visible in crossing the valley.

VALLEY OF LAMBAYEQUE-ETÉN

Etén, Chiclayo, Pimentel, Lambayeque lie in a large valley. Its stream, before it divides, is called the Chancay and carries an unusual volume of water in the dry season. As there are a Chancay valley and town near Lima, the term Lambayeque-Etén is here used instead of Chancay to designate the northern valley. The Chancay "divides" under control into the Etén and the Lambayeque "rivers," which reach the sea near the towns of the same names. Between them lies Chiclayo; also the port of Pimentel. Lambayeque is the old capital and has given its name not only to a province but to the whole department. Chiclayo has surpassed it and is now the departmental capital. Considerable stretches in

the lower part of the valley are desert or half-desert pasture. The divide toward Saña is in part a range of hills; but above this is a low, broad pass. Toward the north, Lambayeque valley merges imperceptibly into that of the Leche.

RAJADA NEAR SIPÁN

Huaca Rajada (Plate XVIII, Fig. 1) is just outside the cultivation of Sipán on the Chancay, on the pass or pampa that connects with Saña. It is really a pair of connected adobe pyramids, both much torn and nearly shapeless now. One seems to have been oblong; the other was perhaps square but is now nearly conical. They are at least 20 m. high. The top has been washed into little abysses, the sides into furrows; individual adobes are scarcely anywhere recognizable on the surface. Layers of cane and horizontal stakes are visible in the adobe at one point.

ETÉN AND REQUE

Along the lower Etén are two large isolated pyramids about 1 km. apart and 2–3 km. respectively downstream and upstream from the towns of Reque and Etén. The latter is the one pueblo in which the native Mochica or Yunca language is still to some degree remembered, though no longer a living speech. I was able to examine the Huaca Etén; Huaca Reque seems similar to it in size and shape.

The Huaca Etén (Plates XIX, Figs. 1, 2; XXX, Fig. 2) has three terraces, 6, 12, and 16 m. high. These are not concentric, but piled up at the west end, where the rear of the structure descends in an unbroken steep slope. From the east, it rises like a gigantic staircase of three steps. Up over the first two of these steps runs a ramp, to the highest platform, which is narrow. A similar plan has been noted for several of the Barranca huacas. The pyramid stands alone in cultivation. There are no signs of cemeteries about, nor of burials on the huaca. Preservation is good; all adobes seen were laid flat. Potsherds are almost lacking. Middendorf (Peru, II, p. 418), gives a good sketch plan of this pyramid, and an elevation which is disproportionately high. He calls it the best preserved ruin seen by him in Peru, and the most similar to Mexican pyramids. He gives the height as 90 ft. (27 m.) as against my estimate of 16 m. Of the Huaca Reque he says it is 100 ft. high, not pyramidal, but castle-like (*sic*) with vertical, dilapidated walls; there is an extensive cemetery on a terrace at its base.

PIMENTEL AND SAN JOSÉ

Stretching along the shore just north of Pimentel is the Huaca Blanca; and a short distance farther, at the fishing town of San José, three similar mound huacas. On one of these the town is built: it may be designated Huaca del Pueblo. In line to the north is the Huaca del Panteón, which bears the present graveyard. A little inland from these two, with a cross near its southern foot, is the Huaca de la Cruz. This is the one identified by Brüning (p. 18) as Sioternic.

It does not, however, impress as the sort of structure to have been selected by legend as the site of memorable events. All three of the San José huacas, and the one near Pimentel, are shapeless, stretched hills of sand with shell and refuse admixture. If they contain adobe construction, this is limited to tombs, or is deeply covered. Uhle would certainly call them shell mounds. They do contain enough shell, which the wind tends to expose, to look whitish. All contain burials. Pottery secured from three of the four is of the usual northern type, rather cruder in quality than the average, as would be expected from a fishing population. Each mound is several hundred meters long and tapers off.

CHOTUNA

Huaca Chotuna is perhaps 5 km. north from San José and as far from Lambayeque. It stands in sand among semi-cultivation and comprises one large pyramid and outworks (Plates XVIII, Figs. 2, 3, 4; XXX, Figs. 3, 4). It has been briefly described by Brüning (pp. 17, 27) because it enters into native tradition. The name seems to mean "Chot (or Siot) huaca," *tüne* being Mochica for huaca. Chotuna is a little short of 90 m. along its base and about 15 m. high. Its top, which was a graveyard surrounded by a wall, consisted of three terraces, rising from 1 to 2 m. above each other from east to west. A long, slightly inclined ramp approaches the middle of the west face, then follows this face to the northwest corner, then the north face to the northeast corner. Here it has reached the top, but it continues south as a passageway along half the east edge of the top and then turns west to the middle terrace. The huaca and outer structures are well preserved, except for the top itself, where excavations have given the rains a chance to cut holes that extend deep into the bowels. The one skull seen was long and undeformed. The adobes are good but definitely round-topped (cf. Plate XVIII, Fig. 4). There are small structures north of the ramp, which lack of time prevented me from mapping.

LAMBAYEQUE

South of Lambayeque, just before the town is entered, is a straggling group of walls and small pyramids, badly ruined. I have heard it called Lambayeque Viejo.

At Mocce, pronounced Mokse and said to be a native name, about a kilometer out of Lambayeque north, is a group of three oblong mounds, essentially one-storied, or at least unterraced on the sides. All seem to have contained burials and are badly washed. A bears a small superstructure like Purgatorio I. B has its adobes laid in a whitish mud, so that it looks at first glance like a Colonial structure with lime mortar. The interior of B is only in part of adobes; there is also fill with whitish soil.

VALLEY OF LA LECHE

TÚCUME

A kilometer north of Túcume, on the highway, is the Huaca Pintada, a small, low, earth mound, with opened graves on and about it.

Just east of the edge of Túcume is the Huaca Grande, an enormous, jagged mass, probably 20 m. high, apparently with a ramp first leading from north to south parallel to the pyramid and offset from its eastern face, then west to the center of this face. The pyramid is badly cut to pieces, evidently from treasure hunting followed by rains.

EL PURGATORIO

This great group lies about a kilometer east of the Huaca Grande, across the bed of an arm of the Rio de la Leche. Brüning (p. 29) says, "Túcume prehispañico, cuyas ruinas existen, cercando el cerro, conocido ahora con el nombre de 'la Raya,' o de Túcume, o del 'Purgatorio.' Estas ruinas son las mas conspicuas y grandiosas de esta provincia de Lambayeque. Fuera de las ruinas de Chanchan, cerca de Trujillo, no conozco un campo donde se hallen tantas huacas grandes juntas, en la región." The site is about as big as Barranca, and, while smaller than Chanchan, more impressive in the grouping of its pyramids. It is not primarily a city, like these two, but an assemblage of large huacas surrounded by lower terraces and outworks, mostly containing burials, and with some enclosed courts. It is arranged around the northern foot of a rocky hill, but does not mount the sides of this very far.

Most of the pyramids at Purgatorio rise steeply, with narrow terrace ledges or none. Several pyramids (D, F, G of the plan) show horizontal stakes projecting at the terrace levels; in F, five layers of them are visible. Stones seem to have been laid in the terraces with the stakes as a sort of flooring; Huaca F shows red wash stains where the small reddish stones are exposed. The small pyramid superimposed on the southeast part of Huaca I shows a number of courses of broken stone on its broken southern front. The same superstructure also contains some red burned adobes—crude bricks. These may be from a fire, since charcoal is observable in the same area; or this part of I may be of Colonial origin or re-use. The evidence is insufficient to warrant the conjecture that these bricks were deliberately fired in the pre-Hispanic period. Throughout, many of the adobes seem top-rounded.

Ramps appear as follows: on pyramid F, clearly worked, from the north; on G, probable, from the north; apparently on the northwest or highest pyramid superimposed on I, from the east; perhaps on E, from the east; and possibly on others. C, D, F, G, as well as I bear smaller superimposed pyramids. The tops of I and probably others served as cemeteries.

This is a remarkable set of ruins, of which the appended panorama (Plate XX, Fig. 1), views (Plate XX, Figs. 2, 3), and sketch plan (Plate XXXI) give an impression that is necessarily inadequate; but they may help to stimulate a thorough exploration. The structures seem typical of the north Chimu province. A collection of vessels which I obtained at Túcume (Plates XXI, XXII), attributed to the Purgatorio, is characteristic of the pottery of the province.

III. ARTIFACTS

POTTERY

As regards pottery, two new sources of information are available as a result of the 1926 expedition. The first of these is three collections of moderate size, secured complete where they had been assembled, at as many spots in the Department of Lambayeque, that is, in the ancient north Chimu province. The second is the cemetery of Taitacantin in Virú, whose surface débris is essentially non-Chimu, with Epigonal or Middle period affiliations. These new data, combined with those treated in my previous memoir (which in turn embodies the results of analysis of the Uhle collection from Moche), make possible a review of the ceramic problems of the Chimu area more extended than has been possible heretofore. In Table I (p. 96), I have put together certain comparative features of significance.

SELECTION OF PIECES IN COLLECTIONS

The three new north Chimu collections comprise 122 vessels. As always, the factor of selection by the collector must be taken into account. Fortunately, at the fishing village of San José I was able to secure twenty-eight pieces from the households of the persons who had dug them up. These poor people were collecting not as amateurs but in order to sell, or perhaps to pass idle days. Anything that according to their experience might have a possible sale value, was therefore likely to be kept. Cook pots, to be sure, had probably been discarded but almost everything else retained. In short, the lot was a random sample almost to the degree that a scientifically made excavation would yield—and better than some that have passed as such. Another collection, bought in Chiclayo, is probably from several sites in the vicinity, but is definitely mediocre in quality, so that the selection may be assumed to be only one degree more stringent. The third and smallest lot was bought at Túcume as taken from the neighboring Purgatorio, and is the best in quality. Analysis establishes more exactly these judgments of the degree of pre-selection. For instance, stirrup mouths, which are almost always saved or acquired, constitute 7 per cent of the total at San José, 22 at Chiclayo, 36 at Túcume; similarly, bridged forms, 4, 14, 9. On the other hand, unhandled jars run 29, 24, 14. It is evident that the Túcume collector refused to purchase from the *huaqueros* most of the unhandled jars, exceptions being made in favor of effigy pieces, or occasional plain ones when several vessels were bought as a lot in order to acquire one or two attractive ones. Of course, the ancient San José fishermen may have been poorer than the population buried in the Purgatorio, and cognizance must be taken of the variability of small series; but the inference is warranted that the existing

TABLE I

North Peruvian Pottery Trait Frequencies

(In Percentages of Total Occurrence)[1]

	North Chimu							South Chimu					North Highland		N. Central Coast	
								Late		Middle		Early				
	Piura (Peabody)	Túcume (Field)	Chiclayo (Field)	San José (Field)	Saña (Peabody)	Ferreñafe-Chiclayo (Davenport)[2]	Chepen (American)	Chanchan (Field)[3]	Moche B (Uhle, California)	Moche A (Uhle, California)	Taitacantin (Field)	Moche E, F (Uhle, California)	North Andean (Tello, San Marcos)	Recuay (Berlin)[4]	Supe, Middle (Uhle, California)	Ancon Middle I, (Uhle California
Pieces	104	22	72	28	57	84	240	130	72	64	65[5]	594	92	55	298	20
Degree of selection	3	3	2	1	3	3	3	3	0	1	1	0	2[6]	3	0	0
Shape Percentages																
Aryballos	1	5	3	0	5	2	1		4	0	0	0	0	0	0	0
Cylindrical goblet		0	0	0	5		1	0	0	11	8	0	0	0	11	x
Stirrup mouth	29	36	22	7	14	28	26	52	8	0	0	42	3	11	0	0
Monkey, etc.	12	32	17	3	9	14	15	43	8			0				
Square section	11			0	5	12	9	22				0				
Bridged forms, total	8	9	14	4		8		30	10	0	3	0.3	57	[7]	6	
Double spout	1	0	3	0	2	4	3	5	3		3	0	0		3	1
Double jar	7	9	11	4	12	5	8	11	6		0	0.3	3	2	0	x
Head and spout		0	0	0		0	1	14	1		0	0	53		3	x
Figure and spout		0	0	0		0			0		0	0				
Unhandled jars	x	10	18	29		28	x	7	24	8		38			x	25
With lugs		5	13	11		2	x		4	4	16				x	
Handled jars	x	41	42	43		32			23	4					x	x
One handle	x	36	42	39		32			18	4					x	x
Two handles		5	0	4		0			4	0					x	x
Flat handle	x	27	40	39		(25)		10	17	4	6	0			x	x
Cylindrical handle	x	9	2	4					6	0					x	x
RFJ type		5	7	0		1		1	0	0	0	0			0	0
Straight-handled dipper	0	0	0	0	0	0	0		0	0	0	2	[8]	5	0	0
Plain bowls, shallow[9]	0	0	1	0		1			4[10]	33	11	0.5[11]			17	14
Tripod bowls	0	0	0	0	0	0	0	0	0	14	17	0			0	0
Cooking pots	x	0	0	0		0			7	6	22	0			x	x
Foot or low pedestal	x	14	11	4					6	19					x	
Vessel flat in cross section		0	22	39		13	x		14	11					x	x
Mouth flaring	x	45	33	57		23	x		36	19	15	x			x	x
Mouth straight (excl. stirrup m.)			18	14		18			10	3		x			x	x
Mouth tapering	x	5	3	4		8	x		0	2		0			x	x
Mouth bearing face			14	14		4			6	14	3	x			x	x
Ornament Percentages																
Painted design	19	0	8		24	10		8	4	39	44	95	89	89	45	33
4-color			0		1					6[12]	0	0	0		7[12]	6[12]
3-color			2		22					25	16	4	78		20	27
2-color			6							8	28	91	11		18	
Monochrome, except black	44	14	18		13			2	14	11	31	3	9	11	49	58
Blackware	37	86	74		63		78	90	82	45	25	3	2		6	3
Pressed relief		50	24		35	24				52	36	7			47	x
Stippling	11	20	11		21	5	14			9	11	0			12	x
Arched panel		5	6			2			7	8						x
Fabric marked	4	0	0						4	0	0					

[1] "x" denotes occurrence. [2] Putnam, Proc. Davenport Acad. Sci., XIII, pp. 17–46, Plates XV–XXV, 1914. [3] The Jacobs collection, plus R-W-B Recuoid, described in Part I of this volume. [4] Seler, Peruanische Alterthümer, Plates 42–47. [5] By design, 65 vessels are represented, but the shape of only 36 can be recognized positively. [6] There are several hundred specimens. The data refer to 92 more or less modeled vessels. Plain jars, bowls, etc., have been ignored. The degree of selection is due to myself, not to Dr. Tello's collecting. [7] Probably occur, but not always determinable from the illustrations. [8] Occur, but were not included among the 92 considered. [9] Convex, of "cumbrous" type. [10] Another 4 per cent are of other shapes. [11] Not strictly of "cumbrous" type. [12] Including 5 and 6-color.

Chiclayo and Túcume collections represent a selection from approximately three and five times as many vessels originally deposited in the tombs.

In my previous report I inferred from a comparison with the unselected Late Chimu Uhle collection from Moche B that the Jacobs collection acquired for Field Museum as a result of my first expedition comprised the cream of a body of material which was from five to ten times as extensive when found. Assuming that the Late south Chimu and the north Chimu ware were the same, we can now specify the selection even more precisely: it was not far from one piece in seven. Thus, stirrup mouths: San José 7 per cent, Uhle 7, Jacobs 52; bridged forms, 4, 5, 30. In short, the verdict of aesthetic quality tallies very closely with that of comparative analysis.

On this account I have indicated in Table I the estimated degree of selection of each lot examined. An 0 indicates no selection; 1, a slight degree, as by non-professional *huaqueros;* 2, moderate selection, as by a novice collector; 3, high degree, as by a gentleman amateur or fancier. The percentages of forms and traits in the important little-selected collections (0 and 1) are therefore printed in black type. It will be seen that the Peabody, American, Davenport, and Berlin museums contain as a rule only definitely "high-graded" material.

NORTH CHIMU STYLE

The first inference derivable from the table is confirmation of the assumption hitherto made by Uhle, Tello, myself, and others that north Chimu ware and Late south Chimu ware are substantially identical. The two wares agree in proportional occurrence of substantially all traits. The presumption therefore would be that the north Chimu ware was also Late in period.[1] The fact that it includes Inca aryballoses confirms this. Then, however, arises the problem what the north Chimu coastland had before this Late style; and to this question there is as yet no indication of answer. I did not see a sherd, nor do I know of a north Chimu vessel in or out of Peru, that is Early Chimu, Middle period-Epigonal, Ecuadorean, Mexican, Chavin, Recuay, or distinctively local in style.[2] On the face of our present knowledge, pottery begins in north Chimu only a few centuries before Pizarro, and 500, perhaps 1,000, years after adjacent south Chimu was making its finest Early ceramics. This seems incredible; and the

[1] It is possible to conceive the north Chimu style originating in the north under the influence of Early Chimu and more or less contemporary with it; then, after the decay of this, flowing southward while maintaining itself in its homeland; thus it would be Old and Late in the north, only Late in the south. If nothing else than it is ever found in the north province, this hypothesis would be acceptable. While the north remains unexplored for remains of a different character, the theory seems premature. It would also have to be elaborated to account for the presence in the northern style of bridged forms, and the like, of south-central Peruvian origin, and of features such as the flat handle. For a possible pre-Late discovery in north Chimu (at Chongollape, up the Lambayeque) see below, p. 101. Lehmann and Doering (p. 18, Fig. 10) show a (stone?) "relief" from "Lambayeque" whose squarish lines may be due to a stylistic influence earlier than Late Chimu.

[2] Occasional traits or elements that are Early or Middle in origin, like the quero-shaped goblet and double spout, occur only in their made-over Late Chimu or Inca forms. To date the northernmost provenience of any Middle-period piece is Chicama, still in the south Chimu province (Hrdlicka, Plate I). The several seeming Early Chimu vessels from Chepén in the American Museum (Kroeber, Moche, Plate 68 *a*, *b*) promise to prove either to be Late Chimu in exceptionally good manner or to have a loose attribution.—Dr. E. Reynolds, director of the Peabody Museum, informs me that two jars in that museum (Nos. 87789 and 87893) with black and white checker and red-white-black style patterns respectively, are from Saña valley.—See also p. 106, note 1.

alternative is the prospect that something wholly unknown and quite likely novel awaits the first explorer able to excavate systematically in the department of Lambayeque.

PIURA

Piura, which I did not visit, appears to constitute a somewhat separate sub-province of north or Late Chimu, so far as can be judged from the one available collection of 104 pieces in the Peabody Museum—probably highly selected. Blackware here sinks from three-fourths of the total to about a third; painted design is more frequent; lug-handles or loops occur on stirrup mouths; bridged shapes are perhaps less common; there occurs a jar with tall, somewhat flaring mouth that has no analogue in the Chimu area proper; handles are solid or twisted as well as flat.[1] Whether Olmos belongs with Piura-La Chira (Amotape) or with Jequetepeque-Lambayeque-Leche, is unknown; the map suggests the former. Tumbes, beyond Piura, is wholly unreported and may contain a further variant. Even a reconnaissance of this most northerly Peruvian lowland would be enlightening.

RELATION OF EARLY AND LATE (NORTH) CHIMU

The relation of Early and north-Late Chimu can also be followed out somewhat more closely than before.

The most original, distinctive, and frequent feature of Early Chimu was the tubular spout and handle: the stirrup mouth and related forms (Kroeber, Moche, p. 201) constitute nearly half the ceramic tomb apparatus (No. 1 of this volume, p. 22). The device remains distinctive of the north-Late phase, but has declined there to perhaps less than a tenth of the total; it comes elaborated, usually with a monkey figure, sometimes with other excrescences; and it may be set crosswise the pot.

About equally frequent in Late Chimu are flat-bridged forms: the double spout, double jar, head and spout, figure and spout (*ibid.*, p. 25, Fig. 2). Of these, only the double jar is Early, is quite rare then (perhaps 1 to 100 stirrups), and has the bridge oval in cross section, the spout tubular instead of tapering. The double spout has an ancient history in the far south (Nazca) and, along with the head and spout, occurs in Middle period Tiahuanacoid wares all the way from Nazca to Supe. The partial replacement of Early Chimu tube and stirrup by Late spout and bridge is therefore to be attributed mainly to foreign influence.

In the same way the combination of small figure and spout is certainly North Andean and may be old in that region. It also is Late but not Early Chimu.

Another partial replacement in Late Chimu was of the unhandled jar by the handled one, the handle being flat. The handled jar did not become as frequent as the plain one, but it constituted perhaps a third or fourth of the total, as against none in Early times; and Late jars are much more varied in shape. The Early ones may come as men or frogs or plain, round or flattish; the fundamental contour does not vary much. The Late are all these, plus animal heads, or animal bodies with upturned mouths, scallops or loops on the edges, lugs as a cross between handle and none; besides which there are aryballos jars, face jars, rotund face jars, many of these of highland or central Peruvian affiliations, or direct copies.

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[1] Kroeber, Moche, Plate 69. Fig. *m* looks as if it might be Colonial; *e* is reminiscent of this volume, Plate XIII, Fig. 1 (Chimbote, red-white-black style) in shape and perhaps design.

A few early forms have gone out in north-Late Chimu: the recurved dipper, the high concavely flaring bowl—the first surely, the second possibly, with early northern highland analogues, Tello's North Andean Archaic. Gone, too, is the occasional influence of Chavin (North Andean) design, which is traceable in about 1 per cent of Early Chimu ware; and the sporadic incising more or less associated with it.

The most conspicuous change is in color: blackware has risen from 3 to 75 or 80 out of 100 occurrences. Design in pressed or moulded relief has also become much more frequent, climbing from 7 to 40 per cent. Painted design to re-enforce the modeling, or for its own sake, on the other hand has fallen from about 95 to perhaps 5 per cent. In all these points, the change is one of reversal of frequency, not of a wholly new or wholly abandoned manner. Blackware and pressed relief, however, are frequent in both north and central Peruvian ware attributed to Middle periods intervening between Early and Late Chimu (Taitacantin described below, Uhle Moche A, Supe, Ancon); and their extremely high prevalence in Late Chimu is likely to be due to central Peruvian stimuli reaching Chimuland in Middle time—probably via the highland, for reasons discussed below.

Early Chimu, in short, for all the free plasticity of its modeling and vigor of design, limited itself to but few fundamental shapes, just as it refrained from color variety, value contrast being the chief purpose of its pigment. Relief, incising, blackware occur sparingly. Except for a few traits which connect it with the northern interior, it is stylistically self-dependent, and original so far as we know. It is imaginatively rich within chaste limits.

Late-north Chimu, on the other hand, is a composite of traits whose earlier occurrence can be traced somewhere else in almost all cases. It has accepted the stirrup mouth but rejected the dipper of Early Chimu; taken over the Tiahuanacoid double spout but nearly given up the cylindrical goblet; assimilated the Inca aryballos but not the Inca stemmed goblet. It is not only literally but discriminatingly eclectic. It has lost the old feeling for vigor of form, but treats its originally heterogeneous materials with uniform, shallow elegance.

MIDDLE PERIOD STYLES

The break between Early and Late Chimu is filled by an irruption of non-Chimu stylistic strains, first known from Uhle's patient recoveries from Moche site A. These, as I have shown, link at many points with Middle (or Tiahuanacoid) Supe ware, which in turn is close to the Uhle-Strong Middle or Tiahuanacoid Ancon pottery (Kroeber, Supe, p. 243). Uhle's division of his Moche A materials into Tiahuanaco, post-Tiahuanaco, and non-Tiahuanaco, which I followed in my Moche paper, is no doubt stylistically valid, but the three strains appear to have been associated in the ground and in time. The same is true of a fourth strain which I separated out, that of tripod bowls with Cursively painted geometric designs.[1] When all this material is reassembled, there are at least 64 different vessels, mostly represented by fragments only, from Moche A. These include no stirrup mouths nor bridged shapes, but 11 per cent of cylindrical goblets,[2] 14 of tripod bowls, 33 of other shallow bowls (mostly with foot), 45 of

[1] Kroeber, Moche, p. 212, Plate 63*f–p;* No. 1 of this volume, p. 31, Plates V and XII.

[2] Quero-shaped, cylindrical or slightly tapering cone frustums.

blackware, 52 of pressed relief on red or blackware, 34 of painted design—as per Table I. It is clear that we have here a style wholly lacking some of the salient Chimu characteristics, both Early and Late, and on the other hand containing elements occurring (in pre-Inca times) as far away as Ecuador and Bolivia, and reappearing for the most part, and in much the same frequencies, more than 300 km. to the south at Supe. We can then safely interpret this assemblage of strains as of Middle Period. Nothing typically Old Chimu has gone into this Middle style.[1] Some of the Middle style traits which Late Chimu took over (for instance, the flat handle) or carried farther (blackware) have already been mentioned.

TAITACANTIN

The Moche A material is confirmed and its significance extended by the remains of Taitacantin or Taitacaltin in Virú. This cemetery is described in the list of sites. I came upon it on the afternoon of the last day I was able to spend in the field before leaving Peru. It was only possible therefore to gather such fragments as littered the surface as débris from the work of local *huaqueros*. It was at once evident that here in the heart of Chimuland was an extensive cemetery, only partly pillaged, without any typical Chimu ware, either Early or Late; that the pottery was prevailingly of Middle period style; and that with it was associated the red-white-black Geometric style. I gathered as much as I could carry away that seemed novel or significant: it was impossible to attempt to take a random sample of the débris without leaving behind too many distinctive pieces. In all, the fragments saved represent about sixty-five different pottery vessels judged by color or painted design (since some of the fragments are small, the total of determined shapes is only thirty-six); and while, under the enforced selection, proportions may not be rated heavily, they tell their story. The shapes and traits found are the following:

No stirrup mouths.

One spout, probably of a double spout, certainly of a bridged form.

Six tripod bowls, both painted and blackware (Plate XXIII, Figs. 5, 6).

Four other shallow bowls, three of them with pedestal-like foot.

One bowl, sides concave in profile (Plate XXV, Fig. 7).

Three cylindrical cups, low forms, such as occur at Supe (Kroeber, Supe, Plate 63*b–d*) and elsewhere (Strong, Ancon, Plate 44*n–q;* Kroeber, Chancay, Plate 83*g*, 84*f;* probably also Kroeber, Moche, Plate 66*f*) along with the tall cylindrical quero-shaped goblets (Plate XXIV, Fig. 3).

Eight globular pots with low flaring lip (Plate XXIV, Fig. 4).

Two flat-handled jars (Plate XXIV, Fig. 2). Six vessels have lug handles, and four, lugs (Plate XXIV, Fig. 1).

Two small human faces and one cat-head from vessel mouths (Plate XXVI; cf. Kroeber, Moche, Plate 66*d*, *e*).

Ten flaring jar mouths, among thirteen jars (Plates XXIII, Fig. 1; XXIV, Figs. 1, 2, 5).

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[1] Blackware, pressed relief, the bridge do occur in Early Chimu but are relatively rare, and their much higher frequencies in Middle period ware are thus likely to be due to non-Chimu influences.

A total of seventeen blackware fragments of vessels of various shapes. Some of these were molded into relief (Plate XXVI, Fig. 2); others, smooth like much Late Chimu ware (Plate XXIV, Fig. 2).

Fragments of twenty redware vessels. These were also both plain (Plate XXV, Fig. 6) and molded (Plates XXIV, Fig. 4; XXV, Figs. 1, 2, 3).

Twenty-two of the black and redware pieces bore molded (pressed) relief; seven of these were stippled in "gooseflesh" (Plates XXIV, Fig. 4; XXV, Fig. 2).

Twenty-eight pieces of painted ware. Of these, ten were in three colors, mostly in red-white-black Geometric style (Plates XXIII, Figs. 2, 4; XXIV, Figs. 3, 6). The remaining eighteen were two-color. Of these, eleven were white and red, two having the white painted on the red. Three were black and white (Plates XXIII, Figs. 1, 5; XXIV, Fig. 5), two of these showing checker patterns on jar necks such as Tello found characteristic of the ware of Huarmey (south of Chimbote and Casma, north of Supe; pieces on exhibition in the Museum of the University of San Carlos in Lima). Two pieces were red on red; and two, blackish on red (Plate XXIII, Fig. 6).

No pieces were painted in the pure Cursive style of small design elements.

One shallow bowl bears an actual basket impression. A similar piece has been reported from Middle Supe (Kroeber, Supe, Plate 76*m*).

Two of the shallow bowls bear incised property marks or owner's "signatures," one under its foot, the other (footless) on the inside (Plate XXV, Fig. 5). Similar marks occur on pieces found by Uhle at Moche A (Kroeber, Moche, p. 209, Plate 64*k*).

There is not a single piece as definitely Tiahuanaco-like as the cylindrical goblets found by Uhle at Moche A or at Supe (Kroeber, Moche, Plate 63*b;* Supe, Plates 73, 77). This is in accord with the fact that none of the Taitacantin painted ware shows more than three colors, whereas the Moche and Supe pieces run to five and six.

The absence of Cursive design is made up for by the presence of red-white-black design on tripod bowls. Uhle's red-white-black from Moche C (Kroeber, Moche, Plate 62*a–d*) is more Cursive than the usual red-white-black from farther south in Peru. There are now on record from the Chimu area tripod bowls in the following styles of design: Cursive, Moche A; red-white-black, Taitacantin; Epigonal or Epigonaloid, sometimes with grinning mouth in a face, Virú or Chicama (Peabody Museum, Farabee collection; Kroeber, Moche, Plate 69*a*, *b*); Chicama, probably Chiquitoy (Hrdlicka, Plate I); vicinity of Trujillo (No. 1 of this volume, Plates V, Fig. 5; XI, Fig. 4); blackware, Taitacantin.

On the whole, the frequencies of stylistic traits are closely similar in the two lots from Moche A and Taitacantin; as is evident from Table I.

The net result is that the Tripod style, the Tiahuanacoid-Epigonal style, pressed blackware and redware, the double spout, and now the red-white-black Geometric style, are all found associated at Taitacantin. In other words, they are not styles separate in time; but strains of diverse origin came to coexist in the ware of one period. That this period was Middle with reference to Early and Late Chimu is clear from Uhle's finding one of its elements—red-white-black ware—stratigraphically under Late Chimu at Moche C; from the fact that Middle pottery contains in fairly high frequency traits such as blackware, pressed relief, bridging, which occur, though rarely, in Early Chimu, whereas this contains nothing that can be set down as characteristic of the Middle style; and, corroboratively, from the fact that Middle style traits such as those mentioned, and others such as the flat handle and relief stippling, appear, usually with increased frequency, in Late Chimu.

HIGHLAND RELATIONS OF MIDDLE PERIOD STYLES

Another inference is that the Middle style is in the main as foreign to the Chimu country in origin as the Early Chimu is particular to part of it and Late Chimu characteristic of all of it. Middle can not be anything but a highland style. Epigonal has highland affiliations wherever it occurs in Peru; and the Ecuadorean and Bolivian strains are from the highlands of those countries. This Middle period manner seems to have come down into the south Chimu valleys as something of an irruption. Had it filtered in, it would have mingled with what it found, just as itself was composite. But it discarded completely all the most characteristic elements of Early Chimu: the stirrup mouth, the free modeling, the handle dipper, the dominant balance of red and white. The Chimu style as such was blotted out—blotted out by one both less pure in origin and less fine aesthetically.

HISTORICAL INFERENCES

It is hard to imagine this blotting out to have happened without the older culture having been ruined by civil war or conquest or both. Yet it is significant that no monument of consequence is known to be associated with the Middle style. Taitacantin is a structureless cemetery. At Moche the highlanders buried in the platforms of the Huaca del Sol which they found ready-made and which seems never to have been re-used. The Late Chimu remains from Moche are from sites B, C, D in the plain about the Early Chimu Sun pyramid, and there is no indication that the occupants of these settlements used the Sun and Moon pyramids and platforms, at least not for burials.

But a highly defined culture is usually difficult to obliterate completely, even by violent destructiveness; and so in time much of the Old Chimu style raised its head again: the stirrup mouth and the plastic interest reappeared as Late Chimu; but blended with the bridged and handled shapes, the blackware and the frequent pressed relief, left over from the Middle style. Just how the threads were continued is far from clear. The sequence, and perhaps the process, are likely to have been similar to those which caused Greek art to revive with underlying similarity to Mycenaean after the geometric Dipylon interregnum.

One other inference is suggested. Early Chimu contains a definite element connected with Chavin sculpture of the M type; the Middle style does not. It seems possible that this Maya-like or pseudo-Maya culture of Chavin was broken by the same influences that put an end to Early Chimu.

If then these two old cultures of coast and interior, Early Chimu and Chavin, incomparably the finest in their aesthetic productions in northern Peru, went down before a culture whose cruder art contains elements traceable as far as Ecuador and Bolivia and which is comparatively uniform to as far south as Ica and Nazca (Kroeber and Strong, Ica, Plate 30; Gayton and Kroeber, Nazca, Plates 13, 14, 16, 19), there seems reason to believe that some strong ethnic force, perhaps even a unified political organization, underlay so powerful a movement.

One can think of an Aymará or, if one like, a proto-Quechua expansion; of an empire centered at Tiahuanaco, where the most nearly classic if uncouth remains in this Middle highland culture have been found; of reconcilement with the legendary history of Montesinos. Such identifications are beyond our present task; but the archaeology of north Peruvian pottery points to something of the sort.

As against all these events in south Chimuland, the north Chimu province as yet shows neither the early native flourishing nor its thrusting aside by ruder mountaineers. Possibly the evidence for the counterpart of the story lies in the soil; perhaps it never happened, there being nothing much for the highlanders to conquer; or, coming from the south, they stopped their career with the Early Chimu confines.

CURSIVE MODELED AND RECUOID STRAINS

We have now accounted temporally for all the ceramic strains previously recognized in the Chimu area except two, the Cursive Modeled and the red-white-black Recuoid (No. 1 of this volume, pp. 32, 34, Plates III–V, XI). Both are represented by a mere handful of extant pieces; consist of bridged and whistling vessels only (though without double spouts); and are wholly without burial data or even exact proveniences. The two strains differ in that the former is a fine ware somewhat better modeled, and its buff surfaces are painted with Cursive geometric decoration in thin black and some red; the latter is smeared with dirty white, vermilion, and sooty black, even over its figures. With the paint removed, the two strains could sometimes hardly be told apart, in their shapes and motivation of modeling, except for the somewhat better texture and care of the former and its somewhat greater ambition of form. I have previously assigned the Cursive style to Middle period on account of generic resemblance of its painting to that of the Cursive tripods; the red-white-black to Late period. To these judgments I still incline. In Table I, I have therefore included the Recuoid specimens secured for Field Museum in the Jacobs collection with the Late Chimu totals. If they should prove not to belong, the entries in the Jacobs column of the table are easily corrected by subtraction of the pieces described on pp. 34–36 of this volume. The Cursive Modeled pieces do not appear in Table I, their number, seven, being too small for separate presentation.

HIGHLAND, RECUAY, AND CHIMBOTE

There is one other consideration to be made of the Cursive Modeled ware: its relation to northern highland and classic Recuay (Tello's North Andean) pottery from the Callejón de Huaylas and vicinity. The classic Recuay (A) ware is marked by several features: linear painting, in general inclining to rounded right angles, often negative (the design in the lighter buff ground color); subjects of the painting often representative of branching-plumed or horned cat-like animals, strongly conventionalized and supplemented by decorative design in the same manner; jar forms prevalent, with few stirrups; short

horizontal spouts or projecting orifices; jar mouths frequently bearing a lip enlarged to a great horizontal disk; modeling, on the jar tops, always in small figures, mostly human, and generally several in number. Some of these traits are wholly lacking in Cursive Modeled and in all north coast styles or strains. But others have analogues in Cursive Modeled. Such are: the inclination to negative design, or indifference between positive and negative, at least in certain areas (*ibid.*, Plate XI, Figs. 1–3*b*, especially Fig. 3); and the smallness and grouping of the modeled figures.

With extension beyond the classic Recuay A, there are other resemblances. Tello's North Andean collection in Lima comprises many vessels, mostly of crude execution, bearing a figure, tubular spout, and bridge. The latter is usually so abnormally short as to serve no real structural function; the figure and spout could as well have been united directly. The bridge is therefore obviously an ingrained stylistic device. Further, there are bowls with a design of the general type shown by the Cursive Modeled rosette illustrated in my former report (Plates IV, Fig. 3; XI, Fig. 4). Until Tello publishes a fuller selection of pieces from his North Andean collection and presents his evidence, whether typological or associational, for its division into an archaic and full-fledged stratum, it will however be difficult to relate this important pottery to the various coast wares. I have previously pointed out (*ibid.*, p. 23) features such as blackware, figure-modeling, handled dippers, quasi-double-jars, which Early Chimu has in common with this North Andean ware and which it might justly be considered as having taken over from it, if we possessed more basis for temporal placing of North Andean or its several strata. The indubitable resemblances of occasional Early Chimu design motives to the motives of Chavin M sculptures are another matter. These motives have not been found in North Andean pottery, except in stylistically much altered form. Tello in Wira-Kocha shows that some of this highland pottery bears designs whose *subject* can be analyzed as the same as that of highland sculptures; but the *treatment* is different, whereas even the treatment is closely similar in the sporadic Early Chimu Chavin style vessels and the Chavin sculptures. Above all, it must be remembered that we know almost no pottery from Chavin itself.

However, this much is clear: small modeled figures, singly or in groups, mostly of human beings, often crudely modeled but still representative in intent, occur in the following pottery styles or strains of northern Peru: Early Chimu, except the Uhle collection; Late Chimu; Cursive Modeled; red-white-black Recuoid; Recuay; and North Andean generally. These occurrences must be historically connected. A significant fact, however, is that the Uhle Early Chimu collection from Moche, among 600 vessels including 200 with figure representations, does not contain even one example of small modeling or grouping. This may be an accident of numbers (Kroeber, Moche, p. 223); but in view of the fair frequency of pieces of this type in Baessler and in the collections of the American Museum and other large institutions, the probability of such an accident seems rather low. When I formerly tried to set off a hypothetical

"Middle Chimu" style from Early Chimu (*ibid.*, pp. 221–224), it was, as I did not at the time so clearly realize, largely on the basis of presence of small or group modeling. The principal criteria of this hypothetical "Middle Chimu" style are genre scenes of two or more figures, engaged in audience, ritual, fishing, etc.; or houses, thrones, boats, mountains, occupied by such figures (*ibid.*, p. 222). Now these are precisely the sort of subjects portrayed again and again in the several styles mentioned. For instance:

Early or "Middle Chimu" (probably Chimbote variant of Early Chimu—see below): Vessels shown by Baessler and others, cited in Kroeber, Moche, p. 222.

Late Chimu: No. 1 of this volume, Plates VI, Figs. 6, 7; VII, Fig. 1; VIII, Figs. 2, 3; IX, Figs. 2, 7; X, Fig. 1; Seler, Alterthümer, Plate XXIII, Figs. 9, 13, etc.

Cursive Modeled: This volume, Plates III, IV.

Red-white-black Recuoid: *Ibid.*, Plate V, Figs. 1–4.

Recuay A: Seler, Plates 42–47.

North Andean: Tello, Introducción, Plate V; and other specimens at the University of San Marcos.

Apparently we may conclude from this either that there was a "Middle Chimu" style more nearly similar than Early Chimu to Late Chimu and highland styles; or that there was no "Middle Chimu," what I so analyzed out being only a strain of Early Chimu unrepresented in the Uhle Moche collection which to date remains our touchstone. In the latter event, the absence of genre or scene modeling from this type collection might be due to accident, or to its representing only one of several Early Chimu sub-periods or sub-areas. The last seems most likely; and the sub-area within Early Chimu indicated as the home of small-figure modeling appears to be the vicinity of Chimbote, that is, the mouth of the Santa. Most of Baessler's genre pieces which I credited to the hypothetical "Middle Chimu" are in fact attributed to Chimbote.[1] In general, the Chimbote collection of the American Museum fits. Montell has recently taken a separate Chimbote variety of (Early) Chimu as self-evident.[2]

Since Chimbote is at the mouth of the Santa and Recuay is at its head, the common trait of small-figure modeling is easy to interpret as the result of neighborly influencing. Moche, being farther away, would on this view not have been reached by the same influence. A new difficulty however arises: Chavin being but a short distance inland from Recuay, its typical incised or modeled style ought also to be found at Chimbote, whereas, so far as known, Chavin style influences appear on the coast only at Moche and Chicama, not at Chimbote. True, Chavin is probably older than Recuay; but if so, Moche-Chicama would also be older than Chimbote, and the latter sub-style would become "post-Early" or "Middle," differing from Moche-Chicama (classic Early Chimu) temporally as well as locally. Evidently, the difficulty cannot yet be solved.

[1] There are exceptions, but the locality attributions of these early collections are notoriously undependable in detail.

[2] Dress and Ornament in Ancient Peru, 1929: "Culture of the Chicama Pottery," pp. 30–95; "Culture of the Chimbote Ceramics," pp. 95–99. He does not mention small-figure modeling, but makes the Chimbote variety coarser, thicker, with attenuated slip and sketchier painting.

No large unit collection from a single Chimbote site has been scientifically excavated and described or analyzed; nor from Recuay nor Chavin. When such material becomes accessible, the problem will probably clear up of itself.[1]

In order to bring into sharper definition the Recuay A style, I add Table II, which lists (in absolute numbers) the frequency of certain stylistic traits among the 55 Recuay vessels in Berlin figured by Seler, and among 92 modeled vessels collected by Tello in and near the Callejón de Huaylas, at the head of which Recuay stands. These are mainly unpublished (a small selection appears in Tello, Introducción; Wira-Kocha, Inca, I; and Antiguo Perú, Figs. 47–57), but are on exhibit at the University of San Marcos in Lima. Several hundred vessels without modeling are not considered here, since they would obscure the relation to the Recuay collection in Berlin, which consists largely of modeled pieces. Tello's division of his collection into archaic and later North Andean is disregarded for present purposes, because neither his attributions nor the evidences for them have been defined.

TABLE II

TRAITS OF RECUAY-CALLEJÓN POTTERY

(Absolute Frequencies)

	Lima, 92 Modeled[2]	Seler, 55 Vessels[3]
COLOR		
4 color	0	?
3 color (R, W, B)[4]	72	?
2 color (R, W), sometimes with Chimu traits	10	?
1 color (buff, gray, red)	8	6
1 color (blackware)	2	6
SHAPE		
Man jar	5	19
Person or head with bridge and spout	28	?
Bird and bridge and spout	8	?
Animal and bridge and spout	13	?
Total with bridge (often very short, sometimes broken)	52 ±	?
Larger person with several smaller	11	9
Person or head flanked by two cats or condors	9	8
Double jars	3	1
Stirrup mouth: ordinary (bifid)	0	5
trifid	2	1
over ring body	1	2
over head or animal	0	4
total	2	6
Ring body	5	2 (3?)
Roof or house represented	3	4
Horizontal spoutlet	34	23

[1] Since this section was written, Tello has published his Antiguo Perú, Primera Epoca, 1929, in which he refers briefly to Chongollape (at the head of irrigation of the Lambayeque-Chancay) as one of the sites of the First, Archaic, Megalithic, or Chavin-Paracas culture of Peru (Plate II, pp. 25, III, 155). However, the only illustrations from Chongollape (Figs. 107–110) are of gold objects, and two black pottery vessels "typical of the Chavin culture" are not illustrated nor further described. The Chongollape discovery was accidental and by laymen. While evidently of great importance, it therefore does not clear up the difficulties here discussed.

[2] See Table I, note 7.

[3] Peruanische Alterthümer, plates 42–47.

[4] Red, white, and black are only approximate terms.

TABLE II—*Continued*

	Lima, 92 Modeled	Seler, 55 Vessels
Vessel mouth flaring slightly or greatly	all	28±
with disk	6	6
tapering (Seler, 47:1)	0	1
Handled dipper	?[1]	3
Design		
Monster with plume	?[1]	11
Double-ended serpent	2	3
Triangular serpent (?) head	4	4
"Grinning" human head	?[1]	1
Trapezoidal human head	?	2
Interlocking (complementary) fish, serpents, or heads	0	0
Fret	1	0
Fret step	6	8
Fret maeander	1	2
Maeander	2	0
Checker	1	1
Cross hatching	3	4
Rows of rhomboids	?	2
Rows of white dots or circles	8	1±
S-scrolls, with or without dots	2	1
Design negative (light on dark)	27	22
positive	12	6
incised	?	1

[1] Occur.

TEXTILES

No fabrics of consequence were secured for Field Museum in northern Peru. They occur, but less frequently than in central and southern Peru, preservation conditions being less favorable.

No textile positively assignable to Early Chimu era is known. They may be expected to have been preserved now and then, but rather rarely. Uhle found none in his series of more than thirty Early tombs at Moche. Even a small collection of fabric fragments of indubitable Early Chimu age would accordingly have historical importance.

For the Middle period there is available a small lot assembled by Uhle from among the débris on platform A of the Moche Sun pyramid. This is being described in a monograph on Peruvian textiles by L. M. O'Neale, some of the general results of which have appeared in a preliminary paper by her and the present author (Un. Calif. Publ. in A. A. E., Vol. XXVIII, 1930). Techniques and designs correspond fairly well with Middle period or Epigonal specimens from the central-southern coast. Close-woven tapestries are represented and several of the designs are definitely Tiahuanacoid.

Late Chimu textiles of exact provenience are represented by two series: a smaller one from a minor excavation made by Uhle in Chanchan, and a somewhat larger one secured by him on the summit of Cerro Blanco, site H at Moche. In this, pottery was represented only by fragments, of both Early and Late

Chimu type. Wooden carvings in good condition were, however, recovered from site H, indicating no great age for most of its remains; and Dr. Uhle in a personal communication, while admitting the evidence to be inconclusive, inclines to consider the remains Late Chimu. The fabrics are of the same general character as those from Chanchan. Certain special traits of these Late Chimu fabrics will be brought out in Dr. O'Neale's further intensive studies. In general, the two Late Chimu lots of textiles are characterized by the following features:

1. Less frequent use of wool weft, and of true tapestry weave, than in Middle period webs from Moche or in Tiahuanacoid-Epigonal ones from Ica and Nazca.

2. A higher frequency of all-cotton fabrics, especially of the more elaborate kinds, and of patterns, particularly geometric ones, adapted to fine cotton-weaving techniques.

3. A considerable resemblance to Late Chincha fabrics, which also tend to specialize in fine cotton productions.

4. Little specific Inca influence in patterns, especially as compared with fabrics from Late sites at Nazca, such as Poroma. The suggestion is that Cuzco influence was strong where the local coast cultures had become feeble or decadent, but left much less impress where these were flourishing.

The Late Chimu textile art, in short, was a vigorous one. It was undergoing its own development on a basis of skilful utilization of the potentialities of the local fiber, cotton; had fairly freed itself from earlier dominance by techniques and designs associated with the highland staple material, wool; and, on account of its healthy condition, showed little tendency to come under the influence of Cuzco. The same seems to have been the course of events at Chincha, a far southern coast center that was also thriving just before and after the Inca conquest.

There is need of an intensive examination of larger series of Late Chimu textiles of known provenience in order to validate or correct the above preliminary conclusions; particularly as regards the northern sub-area, which is unrepresented in the material studied. Even actually undatable collections would be of value in this connection, since it is probable that at least nine-tenths of all preserved north Peruvian material is Late Chimu.

CONCLUSIONS

What is known of the history of culture on the north Peruvian coast summarizes as follows.

Early Times.—As elsewhere in Peru, no trace has yet been discovered of beginnings. The first archaeological evidences are from a developed culture of well-specialized type, the Early Chimu. This is already typically Peruvian in general character, and any attempt to connect it with Ecuador, Central America, or Mexico can be valid only in so far as it also takes account of relations between other parts of Peru and those countries. The Early Chimu culture was sharply

localized in the valleys from the Santa to the Chicama, and no indications have yet come to light of its having existed, even in derivative or diminished form, on the coast to the north or south or in its mountain hinterland.

This culture built in well-squared, large, flat, sun-dried bricks laid in mud mortar. It reared terraced, small-topped pyramids higher than any erected elsewhere in Peru. These were sometimes approached by ramps. It built also some great platforms and thick-walled buildings divided into chambers, but nothing that can be construed as a palace cluster or called a town. Dwellings evidently were mainly of impermanent materials. The dead were put away in rectangular tombs, apparently in a variety of positions, including the extended one. Skulls were fronto-occipitally flattened, but not always so; the undeformed ones seem to have been longish. Gold, copper, alloys of these, perhaps silver, were melted and cast; tin and bronze were unknown. No textiles surely of this period seem to be known, but that they were woven is clear from vase-paintings of women at looms of characteristic Peruvian type. Vase paintings are vigorous, rapid, effective, and normally portray action. Similar paintings, much larger and in several colors, were executed as wall decorations. The pottery is a fine, skilled ware, notable for the strict limitation of its fundamental forms, combined with an almost pure-art freedom of realistic representation in painting and especially in modeling. In quality of free plastic and delineative achievement this art is the highest attained by any South American culture or people. Coloring of the ware was limited to red and white with some supplementary black; but smoked blackware of high quality was occasionally made, and relief modeling occurs alongside three-dimensional modeling and painting.

A small proportion of Early Chimu vessels depart from the normal in showing designs, usually incised, in the style of the stone sculptures of Chavin, which lies in the northern interior highland somewhat south of the Early Chimu area. This influence suggests the Chavin culture as earlier, though the interval cannot have been great and may have been absent, since the spirit of the Chavin manner is well-preserved when it occurs in Chimu pottery. A few pottery shapes, especially a recurved dipper, and the habit of modeling figures on the tops of vessels, connect Early Chimu pottery with that of the vicinity of the upper Santa, both of the style of Recuay and a cruder one. As the age of these styles is not positively ascertained, it cannot yet be said whether Chimu influenced or was influenced by them. There are no specific resemblances to the early culture of Nazca, which was without real pyramids, used irregular, rounded, handmade adobes, apparently lacked copper and metal casting, and had developed a distinctive semi-realistic polychrome style of both pottery and textile decoration which avoided plastic representation. The similarities between these two cultures are generic Peruvian; the connections indirect. Thus both had developed the tube as an accessory of pottery shapes, especially in connection with a sort of handle. At Nazca, however, two straight tubes were used, connected by a solid bridge (double spout); among the Early Chimu, the bent tube itself formed the handle as well as the single vent (stirrup mouth). The devices are similar

enough to make it seem highly probable that they are related in origin due to a common, as yet unknown, stimulus. But it would be arbitrary to derive one from the other, since each comes pure within its culture and there are no transitions. This case is typical of Early Nazca-Early Chimu relations.

Politically, there is nothing to show that there was a unified Early Chimu realm. Important pyramids occur throughout the area. Moche may have had some wider fame as a ritual site, but it surpasses others so little that it can hardly be construed as dominating the religion of the entire culture. Representations of warriors, weapons, and battles are numerous, indicating that fighting was frequent and usually with similarly equipped foes. The suggestion is of local wars between communities within the same culture.

There is nothing to fix the absolute era of Early Chimu culture. It cannot even be placed with precision relatively to other early Peruvian cultures. It and Nazca are both pre-Tiahuanaco; but of course this does not argue necessary contemporaneity. Its nearer approach to late Peruvian standards in pyramid building, adobe squaring, and metal working, suggests Early Chimu as somewhat later than Nazca; but this is far from proof. The specific resemblances noted to Chavin and Recuay do not help because the chronological place of these cultures, even in a relative scheme, is still undetermined.

I have previously designated as Middle Chimu a variant sub-style of Early Chimu pottery, characterized by a predilection for small modeled figures usually grouped in genre situations. This sub-style is not represented in the collections from the Moche type-station. On the other hand, the grouping of small figures recurs in the interior in pottery from the region of Recuay and the upper Santa. It is, therefore, not unlikely that this Chimu sub-style will prove representative of a Chimu sub-area, such as the southerly district of Chimbote and the lower Santa, rather than of a sub-period; though the latter possibility is not precluded.

Middle Times.—The Middle or Tiahuanaco period in the Chimu area represents a break with the old Chimu tradition. Its remains have so far been found only as far north on the coast as the remains of the Early Chimu culture, namely, to Chicama. These remains appear to be represented at relatively few sites, and to be unaccompanied by any notable structures. At Moche, for instance, they have been found only in tombs sunk in platforms halfway up the Sun pyramid; at Taitacantin, in a cemetery in an open field. It is chiefly the pottery which is known, and that from fragments. This ware shows not one of the characteristic features of Early Chimu pottery. It is an agglomeration of vessels strongly or faintly reminiscent of Tiahuanaco: of cylindrical goblets painted in four or five colors, for instance; of tripod bowls suggestive of Ecuador rather than Peru; of Cursively or Geometrically painted red, white and black designs; of abundant blackware, smooth or with impressed designs; of small, conventionally modeled single figures on jars; of flat handles and double spouted vessels. The totality of this essentially heterogeneous ware is fairly close to that of the Middle period at Supe and Ancon on the central coast. There can be little doubt that the bulk of the stylistic elements is of highland rather than

coastal origin, but highland from Ecuador to Bolivia rather than of one Peruvian district; the classic Tiahuanaco manner is represented only in a small minority of pieces. So far as elements of supposedly coastal origin appear, like the double spout, it is in a form different from that of their earliest coastal occurrence—flaring and tapering instead of parallel and cylindrical, in this case.

Only a few specimens of cloth are known, but these agree in designs and techniques with textiles of Middle period elsewhere.

There can be little doubt that the Middle period styles represent an irruption of culture and perhaps peoples from the highland into the Chimu coastland. That this invading culture was in some way the product of active populational movements, perhaps of great conquests, is indicated by the variety and broad geographical extent of the elements that were taken up into its pottery, and by the reappearance of many of the elements on the central Peruvian coast and of some as far south as Nazca. The classic style of Tiahuanaco is one local phase of the style or styles resulting from the stirrings, movements, and upheavals of this era. It is by no means necessary to assume Tiahuanaco as the capital of a great empire. But it is difficult to interpret the known archaeological facts without assuming a relatively uniform and composite culture where only provincial diversity and purity had existed before; and this suggests at least a widespread series of conquests, perhaps a single rule, analogous to that of the Incas, though long before them.

The relative scarcity of Middle era culture remains in the northern coastland is rather sure evidence that this culture was not very long dominant there. But it did prevail sufficiently long, or enter destructively enough, to wreck the old native culture in its nobler aspects, such as its aesthetic flowering. The high quality of Early Chimu modeling and painting, and with it probably many another cultural fineness, vanished.

Late Times.—But the fundamentals, the solid attainments of culture, were not impaired, and re-emerged, with considerable increments, as the Late Chimu civilization, which was once more an essentially coastal one. It was, however, no longer narrowly provincial, but extended far to the north of the old Chimu domain, virtually unchanged at least to the valley of the Leche, in not more than minor modification to Piura, perhaps to Tumbes. Strangely enough, this most northerly coast area has as yet yielded nothing else than Late Chimu remains. It might, therefore, be inferred that this culture was ancient here and had spread to the south Chimu sub-area only after the wrecking of the early local prosperity of this and the withdrawal or subsidence of the wrecking influences. At some points this conclusion may ultimately prove true. It cannot hold for the whole content of Late Chimu culture, because this contains too many elements taken over from the preceding, foreign, Middle era culture: the double spout in pottery, for instance.

At the moment of transition from the prehistoric to the historic period, when the Incas conquered the Chimu area, perhaps a century or less before their own fall, the whole northern coast, from Tumbes to Paramonga, is said

to have been under the domination of a ruler living at Chanchan in the same valley that held the Early Chimu pyramids of Moche.

Pyramids in this Late era no longer attained the height of the largest Early Chimu ones. Their broad tops, probably their interiors also, served as cemeteries. Often the whole structure seems little else than an elevated platform for burials. The sides were steep; terraces, if present, narrow; ramp approaches, frequent, and sidling as well as direct. Clusters of pyramids were more usual than in the Early period. Large towns reared in adobe sprang up, divided by enormous walls into wards or courts, some spaciously empty, others filled with a maze of buildings which may have been the "palaces" which they are sometimes called. Chanchan is the greatest of these cities, but Barranca shows that it was only the culmination of a type. The mud bricks in the northern sub-area were often top-rounded. Evidences as to interments and head form are as yet insufficient, no large-scale scientific excavation having been made in any Late Chimu site. However, it is known that heads were often only flattened occipitally, and probably left natural in other cases. The Late central and southern coast habit of placing a bit of copper in the mouth of the dead was frequently followed.

Metal was abundant in Late Chimu, definitely more so than on the central and southern coast. Bronze had come in, but its precise frequency proportionate to copper and arsenic-copper remains to be ascertained by analyses of objects from datable sites. The indications are that bronze articles were in the minority.

Textiles show little Cuzco influence, but notable similarity to those of Chincha, which was also the seat of a flourishing coast kingdom until its absorption into the Inca realm. In both regions the older predilection for highland wool as a material had abated somewhat and more all-cotton fabrics were being made with textures and patterns adapted to the qualities of this fiber. This tendency appears to have continued even under the Inca dominion, indicating a flourishing condition of the local arts.

Of later increments of Peruvian culture generally, the balance scale was in use, the quipu apparently little or not employed in the Late Chimu area.

Pottery had settled into a syncretized style of little originality but facile elegance and great variety of motives, with shape emphasized as against pattern. Monochrome vessels, usually blackware, constituted more than three-fourths of the total product. This eclectic style combined Early and Middle ideas: the stirrup mouth alongside the double spout, for instance. Certain Early forms, such as dippers and flaring bowls, had been given up. Most of the Middle period motives were retained, except as they depended for their effectiveness on color patterns. The most elaborate and perhaps characteristic vessels combined a spout with a modeled figure on top of either a single or double body. Even here the concepts were old; the double jar was already Early Chimu, though rare then, the figure and spout on a single body were characteristic of the Callejón. A few special shapes, presumably of northern highland origin, the "face vase" and "rotund figure jar," appear occasionally in Late Chimu. The Late pottery painting is mostly indecisive, hasty, and ineffective. When it shows character,

it is usually in Inca design imitations. The ceramics as a whole suggest an eclectic rather than a fixed interest, considerable taste but little high standard, a fashioning skill that had become semi-automatic; the vigor, intensity, and spontaneous if barbarically creative imagination of Early Chimu pottery were gone. The parallel to the change in Greek ceramics during the last six pre-Christian centuries is close.

It may be conjectured that what happened in pottery among the Chimu is more or less typical of what happened to their civilization as a whole. Their Late seems a typically altered renaissance of their Early culture after a foreign intrusion.

The conquest by the Incas appears to have had little effect on Late Chimu culture, perhaps on account either of brief duration of the rule or geographical remoteness from Cuzco. No groups of remains in pure or nearly pure Cuzco style, such as occur from Pachacamac to Nazca, have been reported from the Chimu coast. Where Inca pottery shapes occurred, such as aryballoses and cylindrical goblets, it was in low percentages, and normally unaccompanied by other Cuzco types such as the stemmed beaker with loop handle and lid, or the handled or double-nubbined plate. Inca style painting on Inca shapes was sometimes feebly sketchy, sometimes wholly abandoned in favor of the local red or blackware. Combinations of essentially irreconcilable Cuzco and Chimu shapes were attempted. In all these points there was contrast with the much more powerful effect of Inca entry into the coastland south of Lima.

How far a pre-Inca and an Inca phase of the Late Chimu culture are legitimately distinguishable is not clear, because no records have been kept of large-scale excavations. Most pottery lots of any size that appear to come from one locality contain a few indubitably Inca or Incoid pieces. This would suggest that most of the Late Chimu period fell within the time at least of Inca influence, if not dominion, and was therefore of no great duration. But surer evidence is necessary. The analogous situation recurs at Pachacamac, Chincha, and Ica, even though there it is possible to segregate cemeteries or series of graves with little or no Inca admixture from those in which it is strong.

On the other hand, the Late period witnessed a spread of Chimu objects and ideas far southward along the coast and into the interior. At Casma and Supe there appear to be cemeteries containing an abundance if not prevalence of blackware in good Late Chimu manner. At Chancay, the traces become scant; but beyond, at Ancon, Chillon, Lima, Pachacamac, Chincha, and Ica, sporadically even at Nazca, they reappear, though chiefly in the form of native and altered imitations of the stirrup mouth, and other Chimu motives, whereas the Casma-Supe material looks more like import or the product of locally settled Chimus. Whether the blackware that became fairly frequent on the central and southern coast in Late times was due to Chimu example, is less clear. Late Chincha and Cañete, for instance, show such a high frequency of blackware compared with the lower frequency of Late Chimu shapes and motives as to render it possible that the blackware was the result of a local development, or

due to avidly accepted Chimu suggestions rather than a strong, direct Chimu influence. In the interior hinterland, Cajamarca cemeteries are reported to yield some Chimu forms. Much farther away in the interior, collections attributed wholly to the highland, even to Cuzco, sometimes include a vessel or two in pure Late Chimu manner. Some of these may be erroneous inclusions; but it is likely that other of the attributions are correct, since there is no reason why the Incas should not now and then have prized and imported or even imitated the elegant Chimu exotics. In short, Chimu culture seems to have been externally prosperous to the very days of the Spanish conquest, and even, in a shallowing form, to have been spreading. This conversion of intensity into extension is the tendency that seems to have run through it in most of its aspects, and perhaps at an increasing rate as time went on.

In general, the early, localized flourishing of Chimu culture, its collapse without fundamental disintegration, and subsequent successful renaissance, parallel the course of Toltec-Aztec and especially of Maya culture history. Although the specific Chimu civilization was far from moribund when the Spaniard came, it may well have been already carrying the seeds of decay implanted in it by Inca conquest. So far as it formed part of the pan-Peruvian culture, it was thriving.

BIBLIOGRAPHY

Adams, G. I.—Caudal, procedencia y distribución de aguas de los Departamentos de la Libertad y Ancachs. Cuerpo de Ingenieros de Minas del Perú, Boletín 40, 1906.

Brüning, H. H. (Enrique)—Estudios monográficos del Departamento de Lambayeque. I, Lambayeque, 1922; II, Olmos, 1922; III, Jayanca, 1922; IV, Taimi, 1923. Chiclayo.

García, P.—Observaciones hidrológicas, 1911–1920. Cuerpo de Ingenieros de Minas del Perú, Boletín 102, 1921.

Gayton, A. H. and Kroeber, A. L.—The Uhle Pottery Collections from Nazca. Univ. Calif. Publ. in AAE, XXIV, 1927, pp. 1–46.

Holstein, O.—Chan-Chan: Capital of the Great Chimu. Geographical Review, XVII, 1927, pp. 36–61.

Hrdlička, A.—Some Results of Recent Anthropological Exploration in Peru. Smithsonian Misc. Collections, LVI, No. 16 (Publ. No. 2005), 1911.

Krickeberg, W.—Mexikanisch-Peruanische Parallelen. In: Festschrift (Publication d'Hommage Offerte au) P. W. Schmidt, 1928, pp. 378–393.

Kroeber. A, L.—Archaeological Explorations from Peru. Part I, Ancient Pottery from Trujillo. Field Museum of Natural History, Anthropology, Memoirs, II, No. 1, 1926.

The Uhle Pottery Collections from Moche. Univ. Calif. Publ. in AAE, XXI, 1925, pp. 191–234. Cited as "Kroeber, Moche."

The Uhle Pottery Collections from Supe. *Ibid.*, 1925, pp. 235–264. Cited as "Kroeber, Supe."

The Uhle Pottery Collections from Chancay. *Ibid.*, 1926, pp. 265–304. Cited as "Kroeber, Chancay."

Kroeber, A. L. and Strong, Wm. D.—The Uhle Pottery Collections from Ica. *Ibid.*, 1924, pp. 95–133.

Lehmann, W. and Doering, H.—Kunstgeschichte des Alten Peru, 1924. English translation: The Art of Old Peru. London, 1924.

Middendorf, E. W.—Peru. II, Das Küstenland von Peru, 1894. III, Das Hochland von Peru, 1895. Berlin.

Montell, Gösta.—Dress and Ornaments in Ancient Peru. Göteborg, 1929.

O'Neale, L. M. and Kroeber, A. L.—Textile Periods in Ancient Peru. Univ. Calif. Publ. in AAE, XXVIII, 1930, pp. 23–56.

Putnam, E. K.—The Davenport Collection of Nazca and Other Peruvian Pottery. Proc. Davenport Acad. of Sciences, XIII, 1914, pp. 17–46.

Seler, E.—Gesammelte Abhandlungen, V, 1915.

Peruanische Alterthümer, 1893.

Squier, E. G.—Peru, 1878.

Strong, Wm. D.—The Uhle Pottery Collections from Ancon. Univ. Calif. Publ. in AAE, XXI, 1925, 135–190. Cited as "Strong, Ancon."

Tello, J. C.—Antiguo Perú: Primera Epoca. Lima, 1929.
Introducción a la historia antigua del Perú. Lima, 1922.
Wira-Kocha, Inca, I, 1923.

Uhle, M.—Explorations at Chincha. Univ. Calif. Publ. in AAE, XXI, 1924, pp. 55–94.
Pachacamac. University of Pennsylvania, 1903.
Die Ruinen von Moche. Journ. Soc. des Américanistes de Paris, n. s., X, 1913, pp. 95–117.

Wiener, C.—Pérou et Bolivie, 1880.

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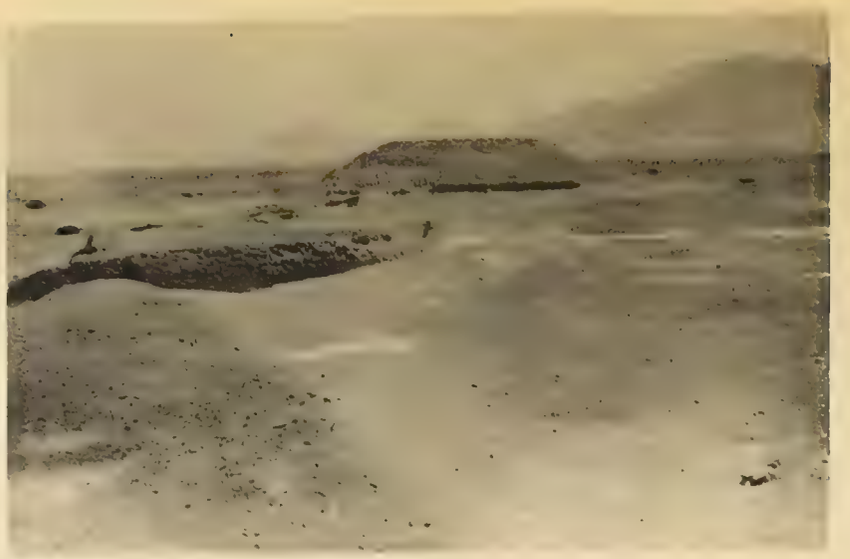

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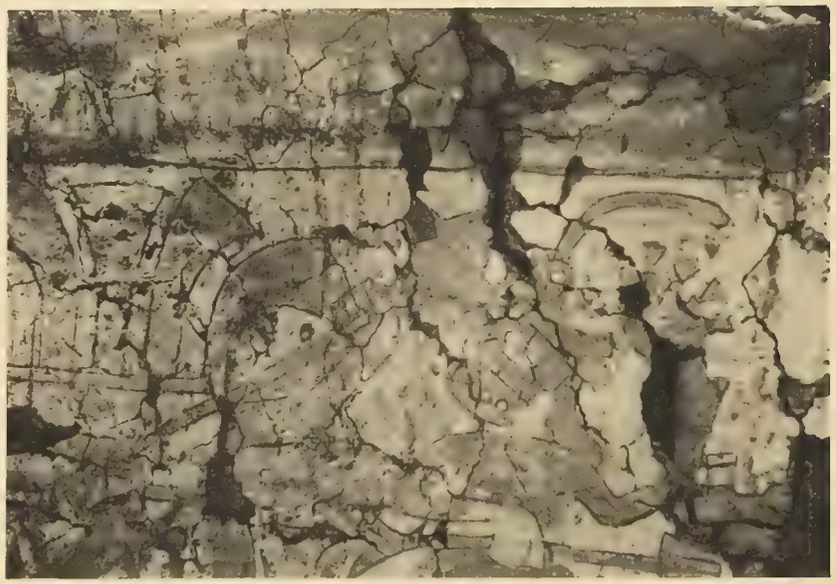

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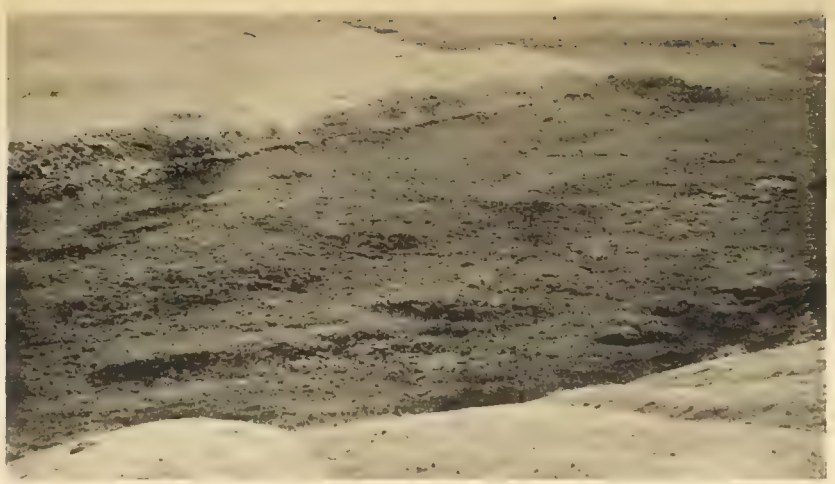
VIRU, MOCHE, JEQUETEPEQUE



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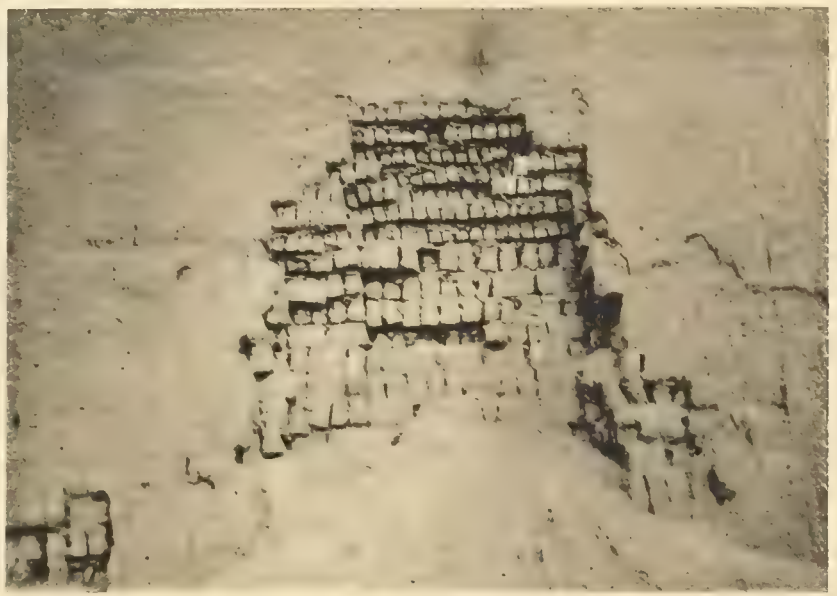

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4

CHANCHAN, STRUCTURAL FEATURES

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4

HUACAS RAJADA AND CHOTUNA

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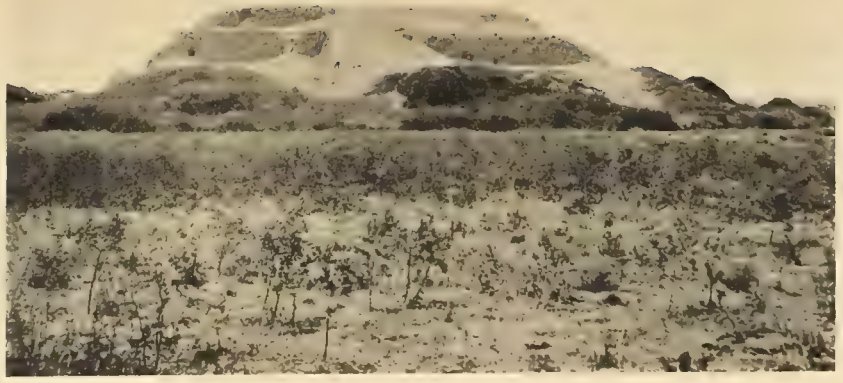

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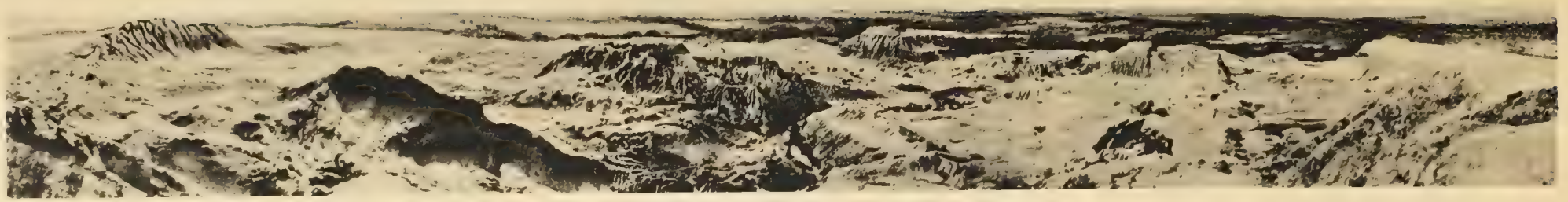
VIEWS OF ETEN

FIG. 1, HUACA ETEN FROM EAST. FIG. 2, SAME, RAMP, SEEN FROM SOUTH FROM FIRST TERRACE. FIGS. 3 AND 4, MOCHICA INDIANS OF ETEN.



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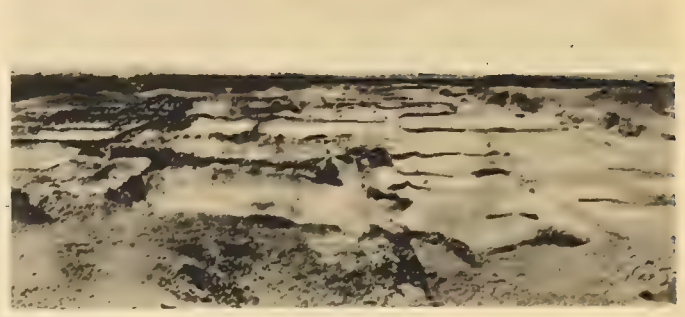

4

PURGATORIO, TUCUME, RIO DE LA LECHE, AND CIUDAD DE LA BARRANCA

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NORTH CHIMU POTTERY FROM TUCUME

1

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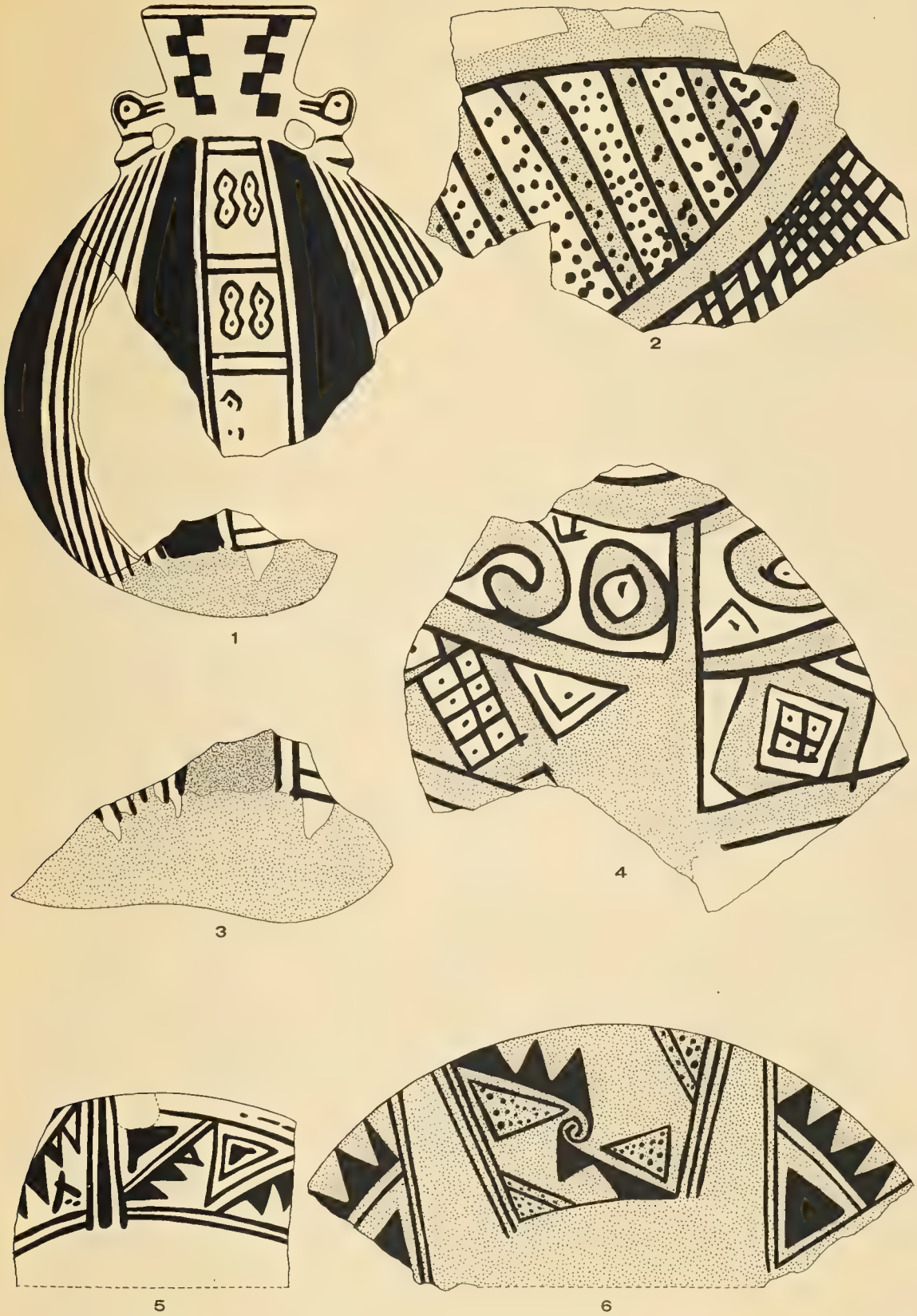
6

NORTH CHIMU POTTERY FROM TUCUME



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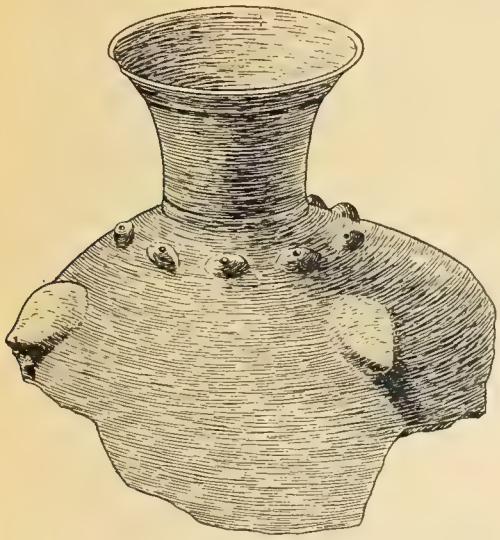

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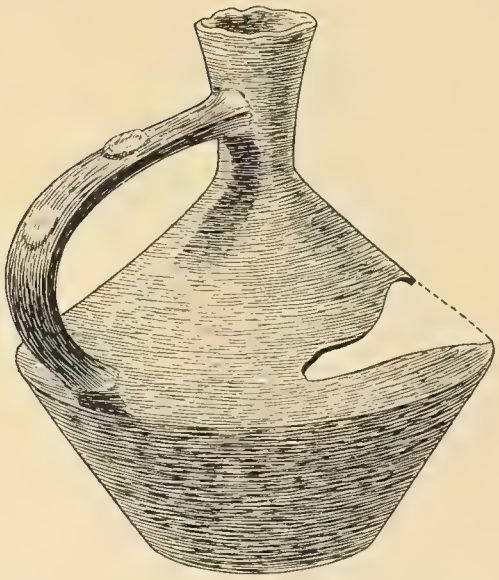

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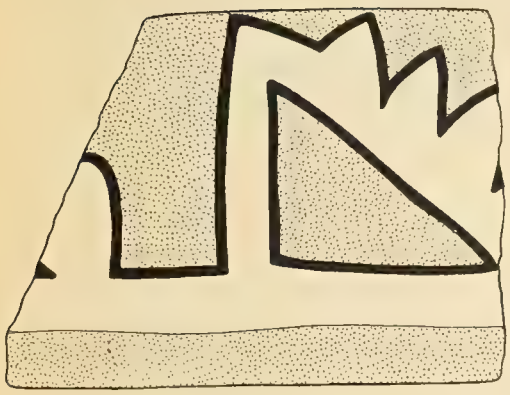

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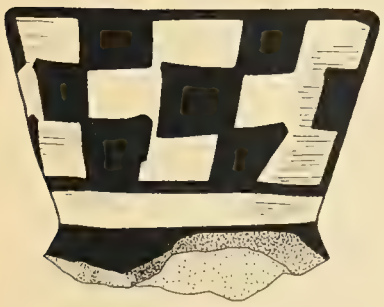

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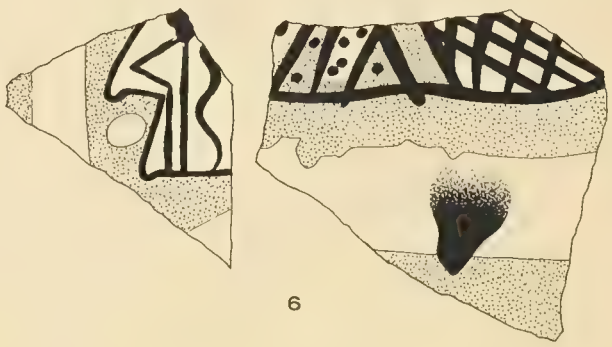

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MIDDLE PERIOD POTTERY FROM TAITACANTIN

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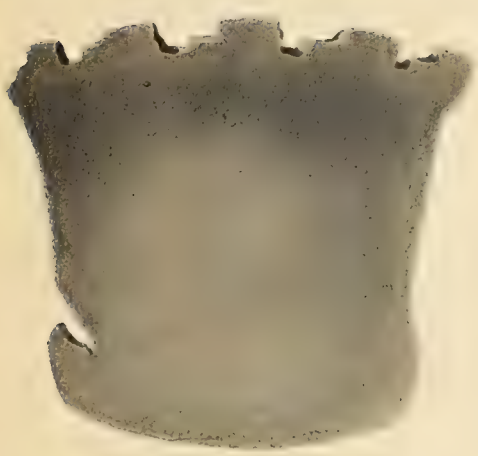

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MIDDLE PERIOD POTTERY FROM TAITACANTIN

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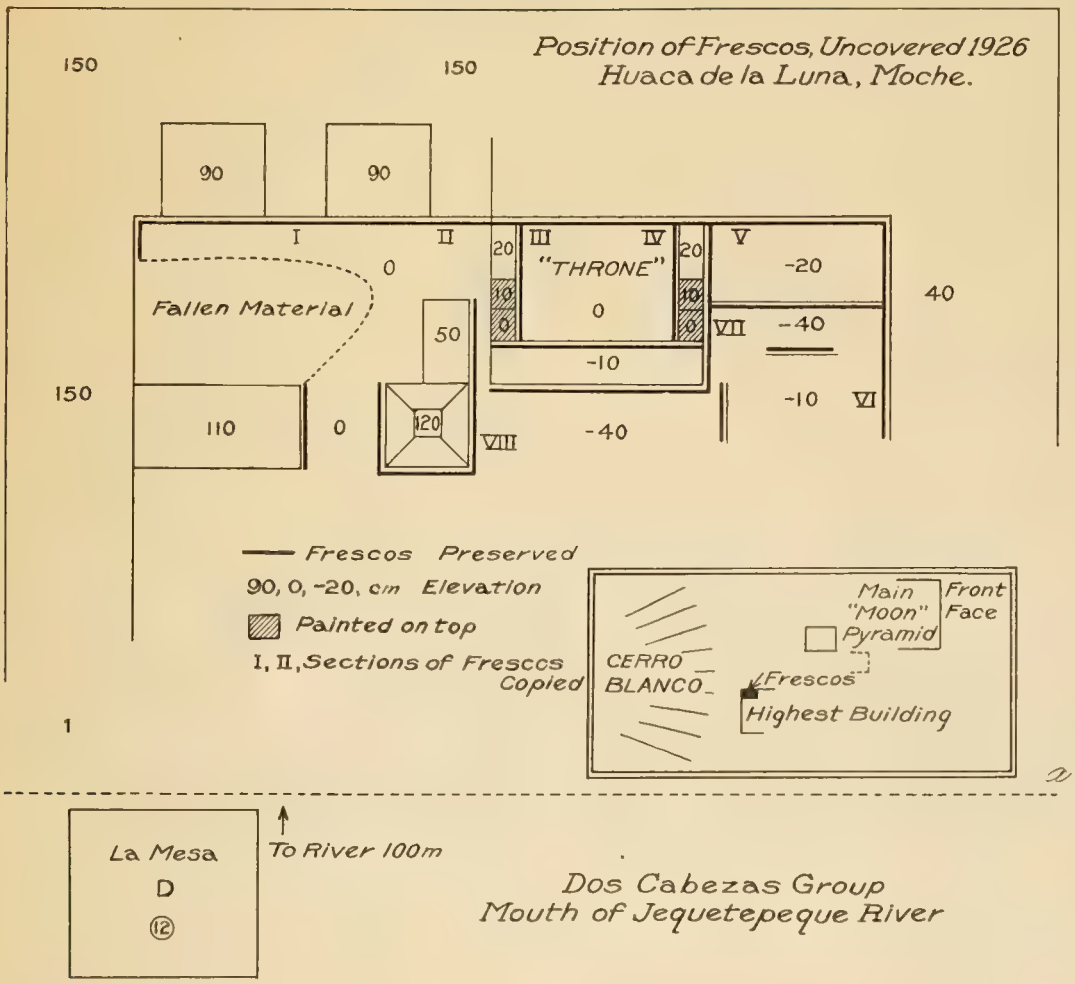

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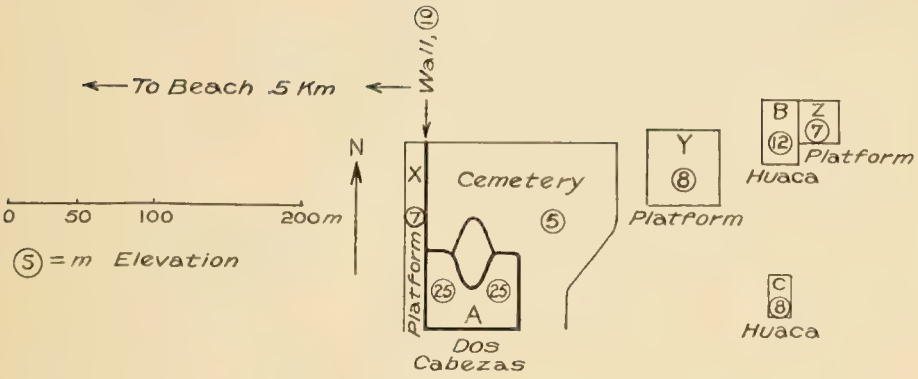
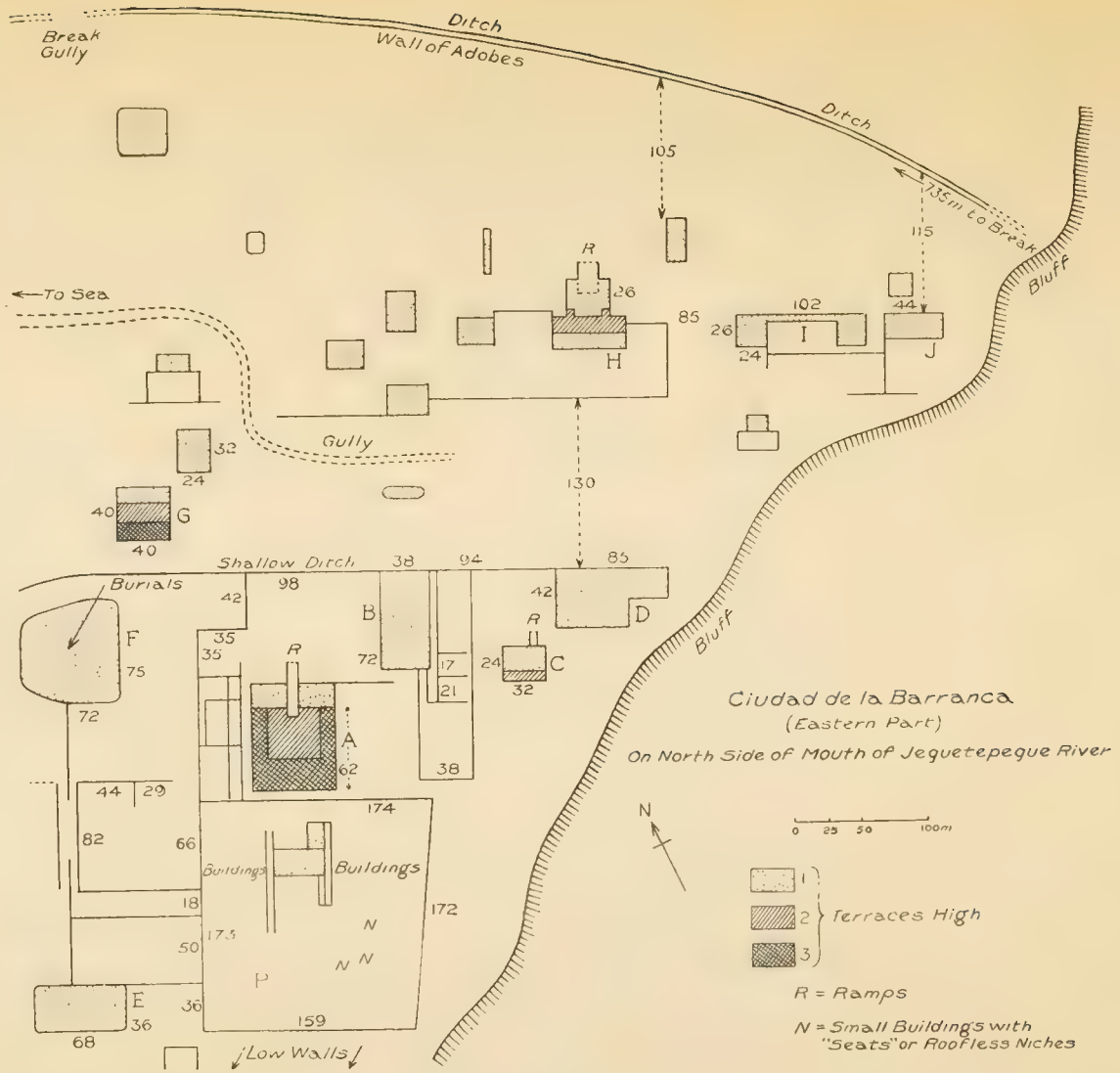
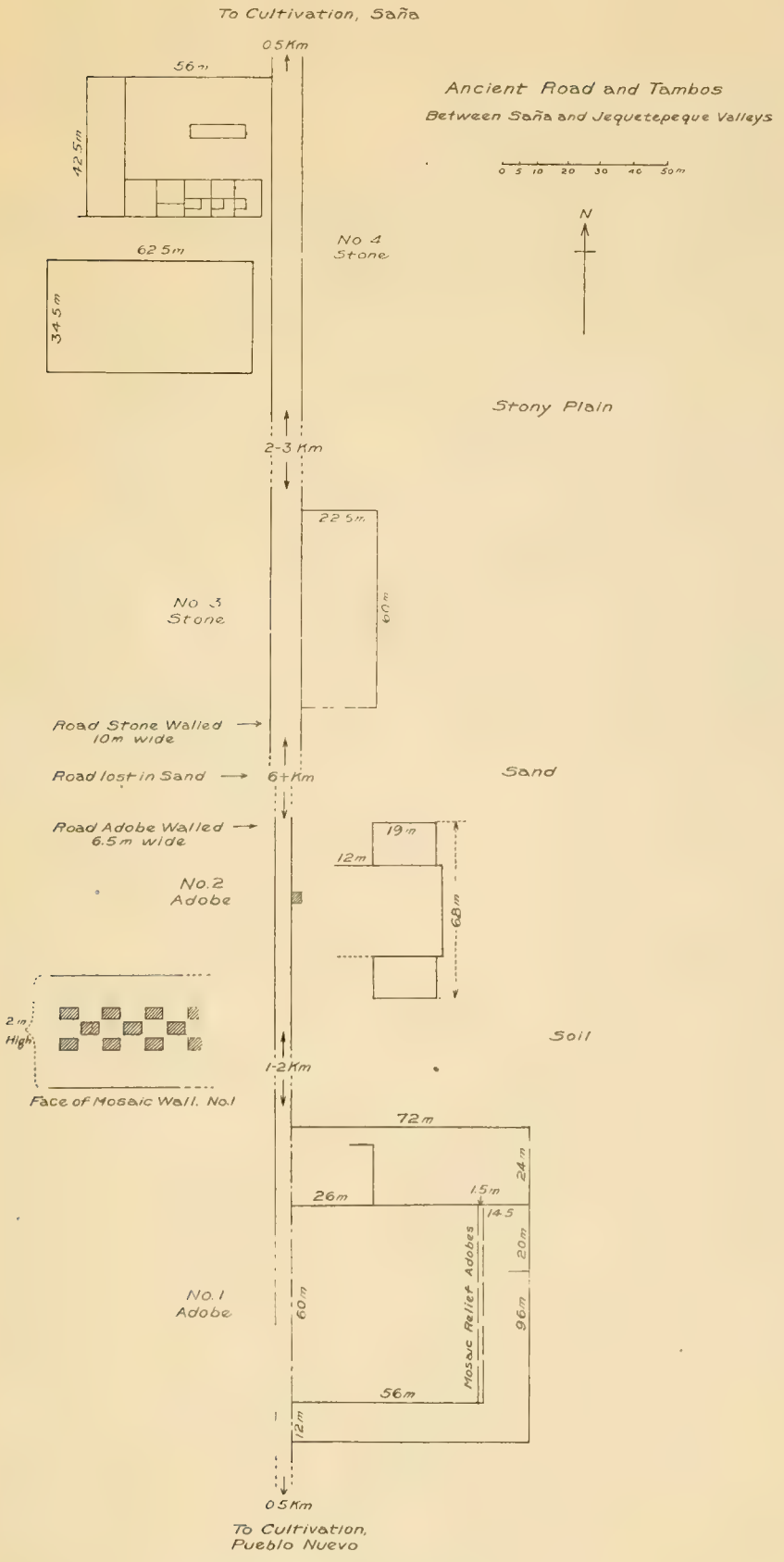


PLANS OF MOCHE FRESCOS AND DOS CABEZAS



PLAN OF EASTERN PART OF CIUDAD DE LA BARRANCA



PLAN OF ANCIENT ROAD BETWEEN JEQUETEPEQUE AND SANA

Huaca Etén

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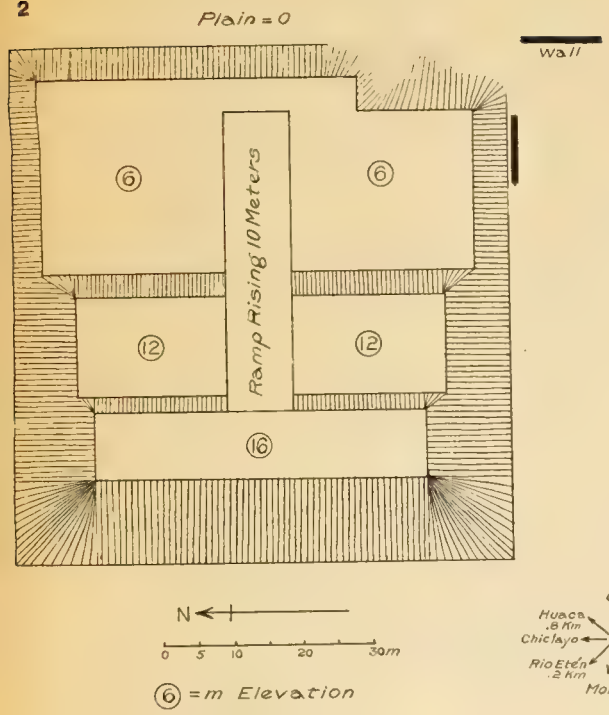

Huaca de los Estacos
Near Pacanga
Guadalupe

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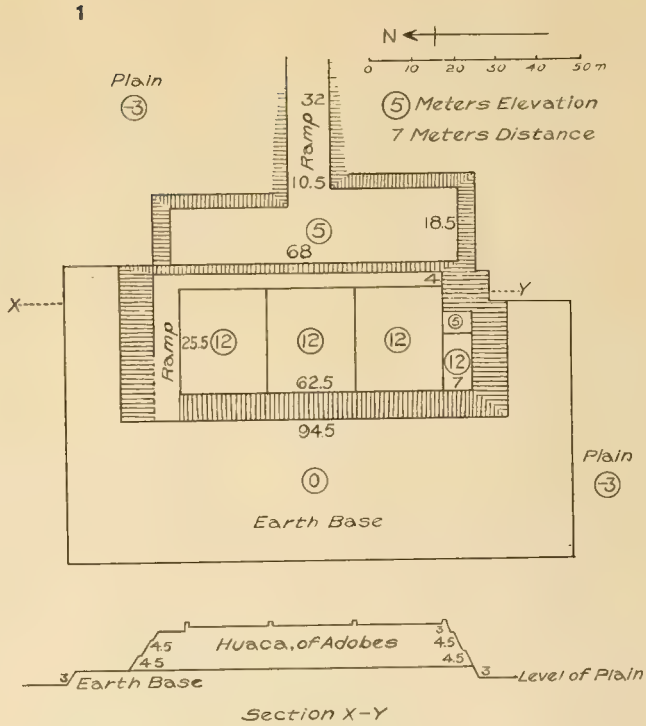

Section X-Y

Huaca Chotuna

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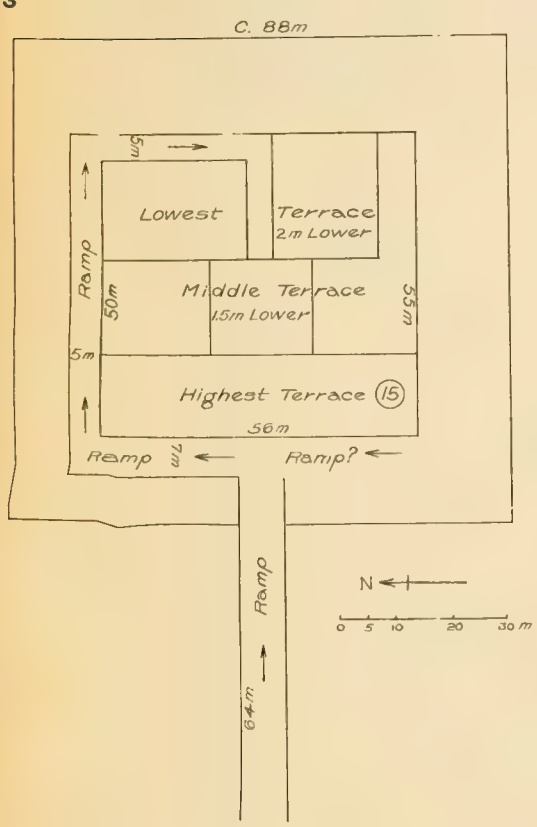

Huaca Chotuna Ruins

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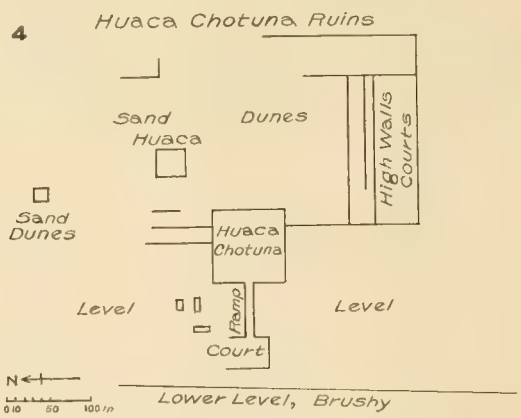

Huacas de Mocce
Lambayegue

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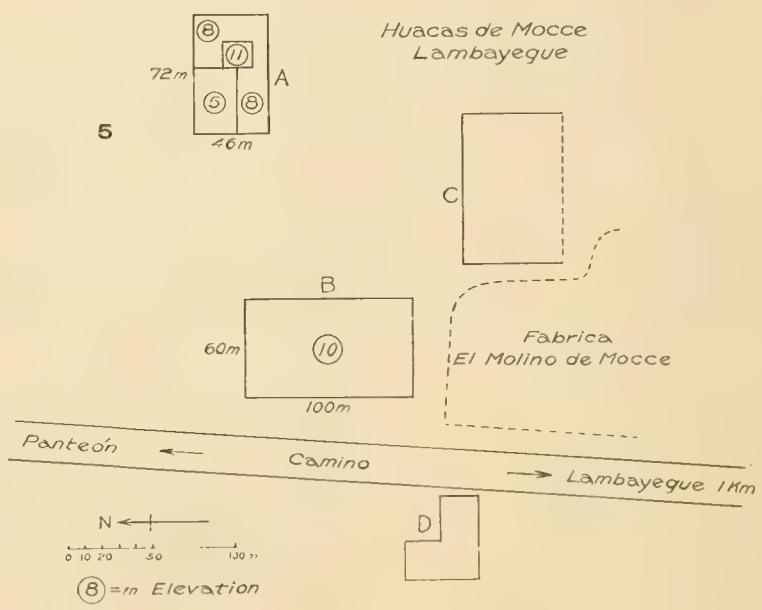
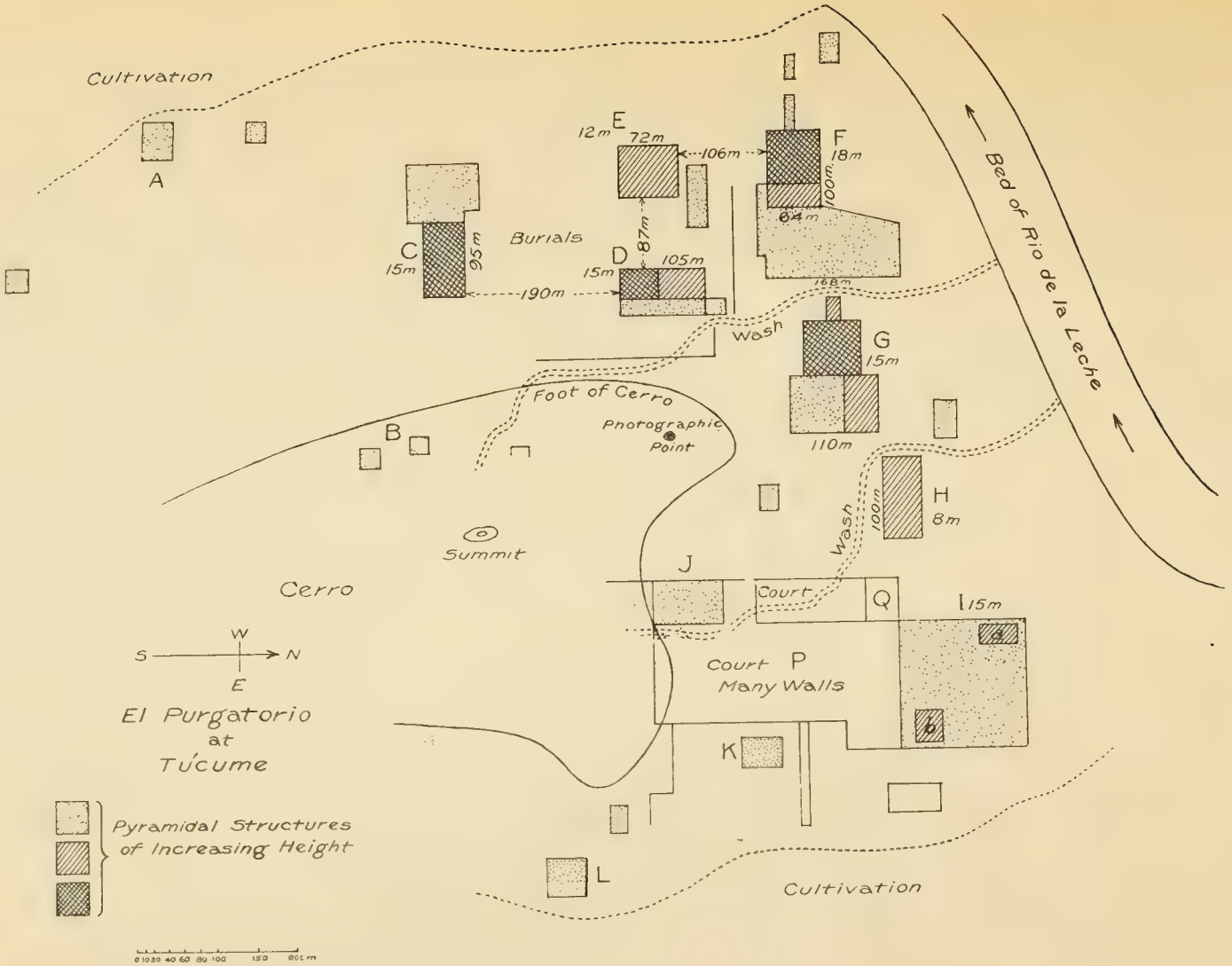


PLANS OF HUACAS ESTACOS, ETEN, CHOTUNA, AND MOCCE



PLAN OF EL PURGATORIO NEAR TUCUME

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ANTHROPOLOGY, MEMOIRS VOLUME II, No. 3

ARCHAEOLOGICAL EXPLORATIONS IN PERU

PART III

TEXTILES OF THE EARLY NAZCA PERIOD

BY

LILA M. O'NEALE

ASSOCIATE PROFESSOR OF HOUSEHOLD ART
AND
ASSOCIATE CURATOR OF TEXTILES IN THE MUSEUM OF ANTHROPOLOGY
AT THE UNIVERSITY OF CALIFORNIA

WITH INTRODUCTION BY

A. L. KROEBER

PROFESSOR OF ANTHROPOLOGY IN THE UNIVERSITY OF CALIFORNIA
RESEARCH ASSOCIATE IN AMERICAN ARCHAEOLOGY IN FIELD MUSEUM

36 Plates, 2 Colored Plates, 1 Text Figure

SECOND MARSHALL FIELD ARCHAEOLOGICAL EXPEDITION TO PERU

PAUL S. MARTIN
CHIEF CURATOR, DEPARTMENT OF ANTHROPOLOGY
EDITOR

CHICAGO, U.S.A.
1937

TYPICAL EARLY NAZCA COLORING (171217)

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LIST OF ILLUSTRATIONS

Specimens designated by numbers containing six figures are in Field Museum of Natural History; those of four figures are in the University of California Museum of Anthropology.

The several sites at a locality in the Nazca Valley are distinguished by capital letters; subsites or portions of a cemetery by small letters following; graves by numbers. Thus, "Cahuachi, Aj10-171218a" means part or fragment *a* of Field Museum specimen 171218 which was found in grave 10 of portion *j* of cemetery (site) A at Cahuachi, valley of Nazca. Superior numbers indicate addition to the original list (see explanation, page 131).

All Field Museum specimens were excavated or found by A. L. Kroeber in 1925 and 1926; the California specimens were secured by Max Uhle in 1905. These latter (4), marked by an asterisk, are surface finds lacking precise provenience.

Arrows by the specimen numbers on the plates denote the direction of the warp.

PLATES

XXXII. Typical Early Nazca Coloring; 171217 (in color).

XXXIII. Typical Early Nazca Brocade and Embroidery; 171218a (in color).

XXXIV. Early Nazca Period Garments. *a*, Cahuachi; Ha-171181; apron, 37½″ x 16½″; plain weave, needleknitted bindings on string ends. *b*, Cahuachi; Aj13-171262; diagram of mantle showing characteristic treatment of edges: side trimmings continued part way across ends. *c*, Cahuachi; Aj13-171266b; child's tunic with embroidered bands (Plate LVI*a*, *b*, *c*). *d*, Cantayo; C-ax cache-171071d; child's tunic with Kelim slit for neck opening. *e*, Cahuachi; A15-171308; tunic with checkerboard section in two colors; interlocking warps and wefts (Plate LXVII*g*).

XXXV. Pads and a Headband(?). Cahuachi. *a*, Aj13-171280; girdle(?) or headband(?), 2½″ wide; plain weave, warp stripe (Plate XXXVII*d*). *b*, *c*, Aj11-171236; surface and reverse sides of pad stuffed with cotton, 8½″ x 5½″; single-face pattern weave, warp and weft floats (Plate XLVI*d*, *e*, *f*). *d*, Ag-171330; pad stuffed with cotton, 10″ x 6″, approximately.

XXXVI. Striped Cotton Materials. *a*, *b*, *c*, Cahuachi; Ha-171183; A14-171305b; A15-171311. *d*, *e*, Majoro; A6-170465b, d; schematic representations of colored yarns in warp set-ups for cotton striped materials.

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TEXT FIGURE

PAGE

Painting on cloth in style of pottery decoration. The earliest known Peruvian painted fabric.....135

ILLUSTRATIONS IN THE PRELIMINARY REPORT

The following Early Nazca specimens are illustrated in the Preliminary Report: University of California Publications in American Archaeology and Ethnology, vol. 28, No. 2, pp. 23–56, Berkeley, 1930.

Cacatilla; *8537; Plate 7*a*. Trancas; *9056; Plate 7*b*. Trancas; *9058; Plate 3*a*. Cahuachi; 170211e; Plate 6*a*. Cantayo; C-ax 11-171033; Plate 8*b*. Cantayo; C-ax 171045; Plate 8*c*. Cantayo; C-ax 171049; Fig. 3. Cantayo; C-ax cache-171071b; Fig 7. Cantayo; C-ax cache-171071d; Plate 8*a*. Cahuachi; Ag-171110; Plate 4*a*, Fig. 1. Cahuachi; Ag-171111; Figs. 8, 9. Cahuachi; Ag-171112; Plate 3*c*. Cahuachi; Ag-171113; Plate 3*b*. Cahuachi; Ag-171114; Plate 3*b*. Cahuachi; G-171140a, b, c; Fig. 2. Cahuachi; Ha-171180a; Plate 3*b*. Cahuachi; Aj10-171216; Fig. 6. Cahuachi; Aj10-171218a; Plate 1*a–c*. Cahuachi; Aj10-171221; Fig. 4. Cahuachi; Aj10-171222; Fig. 5. Cahuachi; Aj10-171226; Plate 2*a, b*. Cahuachi; Aj11-171236; Plate 4*b*. Cahuachi; Aj13-171262; Plate 5. Cahuachi; Aj13-171266b; Plate 2*b*. Cahuachi; A15-171308; Fig. 10.

PREFACE

Dr. O'Neale's monograph on the Early Nazca textiles represents a first installment of the delayed report on my findings in 1926 as leader of the Second Marshall Field Expedition to Peru for Field Museum of Natural History.

In 1925 I visited Peru for Field Museum. Excavations were conducted chiefly in Lima and Cañete valleys, but I also made reconnaissances to Trujillo in the north and as far south as Nazca. The latter trip indicated Paracas and Nazca as strategic points of attack: the former because it bore evidences of an unknown culture, the latter because the several cultures already known from the Nazca region presented a problem of several cultures whose sequence had not been definitely determined.

Before my return in 1926 in company with Mr. W. E. Schenck,[1] on a second expedition for Field Museum, Dr. J. C. Tello had excavated extensively on Paracas peninsula and discovered there two related cultures of fundamental importance. The 1926 expedition accordingly centered its operations in the Nazca area, and for something over three months operated with a considerable crew from a base camp at the edge of the desert, some miles outside the town of Nazca. For part of this period Dr. Tello, as representative of the Peruvian government, was in residence with us. The daily association and resulting cooperation proved extremely stimulating and productive scientifically. After conclusion of the systematic excavations at Nazca, I spent a month, again partly accompanied by Dr. Tello, in the northern coast region, reconnoitering from the river Viru to the river Leche. The results of this trip, as well as of my first year's briefer northern reconnaissance, have been published in Nos. 1 and 2 of this volume.

One fact or another has prevented the preparation of a full report on my major explorations in Peru: above all, the circumstance that the collections were in Chicago, whereas my work kept me at the University of California. A report on Cañete has, however, now been published, and I hope to be able before long to follow this with a report on the results of the expedition to Nazca, other than the textile remains which Dr. O'Neale has here analyzed and presented with such exceptional competence.

Dr. O'Neale, who is Associate Professor of Household Art and Associate Curator of Textiles in the Museum of Anthropology at the University of California, became interested in Peruvian textiles about the time of my return from Peru. The result was a general preliminary paper, published by the University of California under our joint authorship in 1930.[2] The thorough technological analyses upon which this paper rests are wholly the work of Dr. O'Neale. My contribution is limited to questions of period and relative chronology. This report was based in part on the collections made for the University of California by Dr. Max Uhle many years ago, in part on material which I had secured for Field Museum.

The present monograph treats exhaustively the Early period textiles of the Nazca or Rio Grande drainage, and is based primarily on the Field Museum collections, the majority of which have a known provenience as to site, sub-site, and tomb, and therefore possess known relations to types of pottery and other artifacts. The Uhle collections from Nazca, now in California, for the most part lack such associated data, having been collected in a reconnaissance expedition, in fact, on the first known trip of any archaeologist to Nazca.

[1] Formerly Assistant Curator of Archaeology in Anthropological Museum, University of California, and expedition assistant in 1926.

[2] Textile Periods in Ancient Peru, Univ. Calif. Publ. Amer. Arch. Ethn., vol. 28, pp. 23–56, 1930.

Some of the Uhle specimens, however, have been included in the discussion on account of their intrinsic or technological significance.

Dr. O'Neale is especially equipped for this undertaking, not only as the result of many years spent in the examination and analysis of ancient Peruvian textiles now reposing in North American museums, but because she spent the year 1931–32 in Peru as Guggenheim Fellow, pursuing studies on the abundant textile material in the collections in that country.

It should be added that, contrary to prevailing opinion, the textile art of the Early Nazca culture has hitherto been known very inadequately, and has in fact scarcely been defined and recognized. When some thirty years ago the first finely embroidered polychrome shawls and garments from this part of Peru became known in America and Europe, they were attributed to the valley of Ica, which is reached from the port of Pisco. Seler and Crawford, for instance, attribute characteristic show-pieces of this type to Ica. Later, when Uhle discovered that the hearth of the early culture in this area lay around Nazca rather than in Ica, the same type of fabrics became known as Nazca textiles. This was natural because the embroidery design styles showed close relationship to the pottery design styles which by then had become well authenticated as characteristic of Nazca. However, Dr. Tello's extraordinary discoveries at Paracas definitely confirmed a suspicion, which he had harbored for some years, that the source of these sumptuous embroideries and associated textiles was neither Ica nor Nazca, but the peninsula of Paracas, much closer to the coast and only a few miles from the harbor of Pisco. Since then, the name of Paracas has properly become associated with this type of textiles.

The stylistic relation between Early Nazca pottery designs and Paracas textile designs is so close as to leave little doubt of a common origin; that is to say, of a transfer of the designs from one medium to the other. Dr. Tello, impressed with the antiquity of Paracas, seems inclined to consider the Paracas textiles the earlier. In common with most archaeologists I hold it to be more likely that the Nazca pottery is the earlier, because naturalistic or seminaturalistic representations containing curved lines involve no difficult technique in pottery painting, but do involve a high and special technical development in textile ornamentation. Were the question one of geometric patterns, the answer might well be the reverse.

The situation contains one remarkable feature. The Paracas textile representations of demons or human beings do not find their counterpart in Paracas pottery, and, vice versa, the corresponding pottery representations at Nazca have only a rudimentary counterpart in the textiles of the Nazca culture. The Early Nazca textile art which I discovered in association with typical Early Nazca pottery is largely decorative and tends to the geometric. Its representative or naturalistic impulses are relatively undeveloped. This is abundantly manifest in Dr. O'Neale's design illustrations. The Paracas and Nazca textile techniques are closely similar, but in general stylistic tendency Nazca pottery and Paracas fabrics go together; and Nazca fabrics and Paracas pottery vessels are alike at least in not seriously attempting naturalistic representation. The cause of this peculiar relation is unknown, but the fact is now indubitable. The reason it had not been recognized previously is that the great mass of Peruvian collections which have found their way into museums were gathered commercially, and therefore have remained unaccompanied by data as to their associations. In the case of the Nazca area, the lack of such data was particularly unfortunate because this area witnessed a long, continuous occupation by a series of peoples or cultures. At least three fundamental types of culture are represented in the remains; and, if variants of these be included, not less than six or seven periods must be recognized. On account of

their greater age, the Early Nazca textiles are least frequently preserved. In fact, I had little success in discovering them except in the lower and sandier reaches of the valley. The majority of fabrics secured from about Nazca are of Middle and Late times of Peruvian prehistory, and are as thoroughly different from the Early textiles as the Middle and Late pottery of the valley is from the Early pottery.

The one painted piece of cloth shown (Text Fig., p. 135) is of interest because it duplicates in its design a well-known type of Early Nazca pottery vessel, in fact, a type characteristic of what I have called the A phase of Early Nazca, and which I believe, in common with most Peruvianists, to be the oldest phase of this culture. The birds, their attitudes, and their placement in the design, on this piece of cloth, are as good as identical with the corresponding birds painted on Early Nazca-A double-spout jars. This piece illustrates what the Early Nazca people did when they wanted a picture on a piece of cloth: they simply painted it on. They did not seriously attempt to weave or embroider the picture. At Paracas, on the contrary, such attempts were made, especially in embroidery, and, on the whole, with astounding success; but, so far as known, Paracas made no corresponding attempt to paint pictures on its pots.

The specimen in question is of further interest because it is the oldest painted textile as yet known from Peru, though its age in years could only be guessed.

While the wealth of information brought to light by Dr. O'Neale's thorough and accurate analyses primarily illumines the textile art of only one sector and period in Peru, this is an ancient and important one—of importance for the entire pre-Columbian development. When equally fundamental studies for other periods and regions have been made, it can be anticipated that the history of the whole of this art, which reached so unexampled a development in prehistoric Peru, will become a clear and consecutive story.

A. L. Kroeber

ARCHAEOLOGICAL EXPLORATIONS IN PERU

PART III

TEXTILES OF THE EARLY NAZCA PERIOD

INTRODUCTION

A preliminary report on the textiles from Peruvian coastal sites extending from Moche Valley in the north to Nazca Valley in the south has already been published.[1] About a sixth of the 650-odd analytic descriptions summarized by that report applied to fabrics from the Early Nazca period.[2] These, with the exception of four pieces, were secured on the First and Second Marshall Field Archaeological Expeditions by Dr. A. L. Kroeber in 1925 and 1926, and were made available for study through the cooperation of Field Museum of Natural History. The four exceptions, obtained by purchase or surface gathering in 1905, are part of the Max Uhle Peruvian collection in the University of California Museum of Anthropology. They have been tentatively classified as to period upon the basis of their stylistic similarities to the excavated textiles, and may be identified throughout this paper by the asterisk preceding the site name or specimen number.

The present monograph deals only with specimens from Early sites in the Nazca Valley, primarily Cahuachi, Majoro, and Cantayo, concerning which Dr. Kroeber has very kindly furnished the following information:

"Nazca is the best populated district in the drainage of the Rio Grande. This river is the product of the confluence, rather far down in their courses, of a series of streams. These are, in order from northwest to southeast: the Huayurí; the Rio Grande with the Palpa and Visco as tributaries; the Ingenio; the Aja and Tierra Blanca, which unite below the town of Nazca, about opposite Ocongalla; and another pair, the Taruga and Trancas, which join the Aja-Blanca-Nazca shortly before they all fall into the Huayurí-Grande-Ingenio combination.

"The principal sites investigated by Kroeber are Aja on the Aja just above Nazca city; and, on the south side of the Tierra Blanca-Nazca: Cantayo or Cantallo, upstream from the town; Huayrona, 3 km. below; Majoro, Ocongalla, Agua Santa, and Pueblo Viejo, c. 9–12 km.; Soisongo, on the north side of the stream; Las Cañas; Cahuachi; Estaquerón. The last may be perhaps 20 km. from Nazca. At nearly every site, two or more periods are represented among the remains. These may be as far apart as Nazca A (earliest phase of "Proto-Nazca") and Late Ica or Inca. The determination of period must therefore be made according to tomb, not by mere site. The best preservation conditions for textiles were encountered at Cahuachi, especially on certain terraced bluffs whose graves were preponderantly of Nazca A period, as evidenced by their pottery. Here Kroeber tried to secure all possible specimens of cloth of this earliest stage of culture yet known in the Ica-Nazca area."

A complete list of specimens, with their sites and grave numbers, follows (Table 1). The total, 163, differs from that given in the preliminary paper, 117, mainly because the analysis of Early Nazca colors in the present study necessitated distinguishing between technically identical specimens. Plaited fragments constructed of various numbers of

[1] Lila M. O'Neale and A. L. Kroeber, Textile Periods in Ancient Peru, Univ. Calif. Publ. Amer. Arch. Ethn., vol. 28, pp. 23–56, 1930. Herein cited as Textile Periods.

[2] Kroeber places the collection from Cahuachi in the first of the Early Nazca periods, Nazca A. *Idem*, p. 26, Table 1.

strands, and plain weave fragments, often very small, which present no new features, but are evidence of the range of qualities of Early period fabrics, may also be identified by letters or by letters and superior numbers, a^1, b^2, as additions to the original list.

TABLE 1

FIELD MUSEUM COLLECTION OF EARLY NAZCA TEXTILES: SITES AND GRAVES

*Cacatilla†	1
8537	
*Trancas†	2
9056, 9058	
*"Nazca"†	1
9120	
Cahuachi	15
170211a–c^{1-2}, d^{1-6}–i	
Ocongalla	2
Grave 3: 170413a, b	
Majoro	14
Grave A6: 170462a, b; 170465a–e	
Grave A7: 170476a–e, f^{1-2}	
Ocongalla West	1
Grave 6: 170665	
Ocongalla West B	2
Grave 1: 170677a, b	
Cantayo	13
Grave C-ax 11: 171033	
Grave C-ax: 171045; 171049; 171050	
Grave C-ax 13: 171054; 171055	
Grave C-ax: 171059	
Grave C-ax cache: 171071a^{1-2}–e	
Cahuachi	112
Grave Ag: 171109a^{1-2}, b^{1-4}, c; 171110; 171111; 171112; 171113; 171114; 171115; 171116a, b; 171117; 171118a–e, f^{1-3}, g, h; 171119	
Grave Ea: 171124a, b^{1-4}, c^{1-2}, d; 171125	
Grave G: 171140a, b^{1-2}, c; 171141	
Grave Ha: 171180a, b^{1-2}–d; 171181; 171182a, b; 171183	
Grave Aj 10: 171213; 171214; 171215; 171216; 171217a, b^{1-2}; 171218a, b; 171219a, b; 171220; 171221; 171222; 171223a, b; 171224; 171225; 171226; 171227a, b	
Grave Aj 11: 171236; 171237; 171238a, b^{1-2}	
Grave Aj 12: 171258a^{1-2}, b	
Grave Aj 13: 171262; 171265; 171266a, b; 171267a, b; 171279a, b; 171280; 171289a–g	
Grave Al 4: 171305a–c; 171306	
Grave Al 5: 171308; 171309; 171310; 171311; 171312; 171314; 171321a, b^{1-5}	
Grave Ag 7: 171330	
Total	163

† Period attributed. The asterisk is used throughout to designate these four pieces whose age is not determined by pottery associated in the same graves.

TYPICAL EARLY NAZCA EMBROIDERY (171218a)

GARMENT TYPES

The Early Nazca collection is treated in this paper as a whole without regard for the several valley sites represented by the finds.

With few exceptions the specimens are partly or badly disintegrated. Some are charred in appearance, and so fragile that they cannot be lifted except as a mass; others are mere fragments of garments, but may be identified with reasonable certainty. The best-preserved examples in the collection are not always complete, although measurements determining their full sizes are often possible.

A suggested inventory of the garments or garment materials represented by one or several examples classifies them under the following types: aprons, kerchiefs, mantles, tunics, turban braids, ribbons and bands, bits of gauze weave fabrics, and fragments of costume details such as passementeries, bands, and fringes.

Briefly, aprons are characterized by the ties or strings which extend from each of the four corners; kerchiefs are small rectangles decorated by various techniques; mantles are large rectangles embroidered, or patterned in the loom; and tunics are typical sleeveless shirts. The smaller accessories of dress do not suggest their original uses, but are certainly not examples of any of the groups just mentioned.

Table 2 shows the relative numbers of these various items of dress in two sets of totals: the first set refers to these specimens which can safely be identified by size or style as specific garments. The second set of totals refers to groups of specimens which include almost certainly identifiable fragments—like the end of an apron tie—and also to those fragments which might have been either aprons, or kerchiefs, or mantles, except that their dimensions, textures, or trimmed edges are more or less characteristic of some of them. Some bits, lacking such scanty clues as the above, have been arbitrarily classified. This procedure has been followed in connection with the many needleknitted fringes and faces or heads which have been allocated to the mantle group, but which with additional evidence may prove to have been parts of head-dresses. Future finds of more perfect specimens will no doubt make possible the identification of more of the garment costume details.

TABLE 2

OBJECT CLASSIFICATION

Aprons:
- Identifiable garments 2
  171181, 171215
- Identifiable only by stylistic features 2
  171223b, 171267b

Kerchiefs:
- Identifiable garments 8
  *9120, 170462b, 171033, 171059, 171071a[1], 171226, 171266a, 171305c
- Identifiable only by stylistic features 3
  171045, 171118e, 171225

Mantles:
- Identifiable garments 35
  170465a, b, d, 170476a, 170665, 171110, 171112, 171118d, 171119, 171182a, b, 171183, 171213, 171214, 171216, 171217b[1-2], 171218a, b, 171219a, b, 171220, 171221, 171222, 171223a, 171224, 171237, 171262, 171265, 171279a, 171305a, b, 171309, 171310, 171311
- Identifiable only by stylistic features 40
  *8537, *9056, *9058, 170211a–c[1-2], e, h, i, 170413a, b, 170462a, 170465c, 170476b, f[1], 170677a, b, 171055, 171071a[2], 171111, 171113, 171114, 171115, 171116a, 171117, 171125, 171141, 171180a, b[1-2], d, 171238a, 171267a, 171321a, b[1-5]

Tunics:
- Identifiable garments 4
  171071d, 171217a, 171266b, 171308
- Identifiable only by stylistic features 5
  170211f, g, 171071b, 171118b, c

Bands:
- Identifiable 13
  170465e, 170476c–e, 171049, 171050, 171054, 171118a, 171140a–c, 171280

Turban bands:
- Identifiable 31
  170211d[1-6], 171109a[1-2], b[1-4], c, 171116b, 171118f[1-3], 171124a, b[1-4], c[1-2], 171227a, b, 171238b[1-2], 171258a[1-2], b

Cords:
- Identifiable 3
  170476f[2], 171124d, 171180c

Slings:
- Identifiable 8
  171289a–g, 171314

Pads:
- Identifiable 2
  171236, 171330
- Identifiable only by stylistic features 1
  171279b

Nets:
- Identifiable 2
  171118g, h

Feathered material:
- Identifiable only by stylistic features 1
  171071c

Wrappings:
- Identifiable 2
  171306, 171312

Miscellaneous:
- Identifiable only by stylistic features 1
  171071e

Total 163

PAINTING ON CLOTH IN STYLE OF POTTERY DECORATION

The earliest known Peruvian painted fabric

EARLY NAZCA COLORS

The most striking feature of these Early Nazca textiles is their range of colors. Even before one notes the techniques or other details, one is conscious of the bewildering number of hues, especially in the garments with needleworked design motives or decorative edges. Many of the Late and Inca period tapestries are colorful, but not more colorful than are the Early period fringed and embroidered plain weave garments. The more complex passementeries of Nazca, and the intricate embroideries of Paracas (Necropolis period) are constructed of 7, 10, 12, 15, or more colored yarns used both with and without regularly repeated sequences. Unfortunately, color analysis is much less tangible than is the analysis of techniques, but the former's challenge to attention is insistent. The obstacles are fairly obvious to begin with, becoming more rather than less numerous as the work proceeds.

An analyst, attempting to determine the wide range of colors employed by the Early Nazca weavers and embroiderers, not only encounters the difficulty of selecting suitable color names by which to convey his information, but also the difficulty of combining with them the right modifiers to differentiate between colors bearing the same name. For example, no single color is more often found in Peruvian fabrics than Red. In addition to the familiar Brickdust, an Orange-Red, there are Rose-Reds which include more or less appreciable admixtures of Blue. Add to this the tendency of one color to grade imperceptibly into its neighbors, its clearly recognized differences in value (the position on a light-to-dark scale), and in purity or saturation, and analysis becomes a search for the way out of a maze of adjectival phrases.

In an effort to be more specific than to list the frequencies of Early Nazca colors under such embracing and indefinite hue categories as "bright," "medium," "pale," "grayed," "strong" and the like, 350 yarns and swatches were matched against the complete range of color samples presented in Maerz and Paul's Dictionary of Color.[3] The method has the obvious advantage of yielding a definitive result if painstakingly pursued. In the case of archaeological specimens, the information gained can be only relatively accurate since we know nothing of the amount of wear and consequent change in the colors of a tattered garment by comparison with similar ones from a garment which appears to have been little worn. Nor do we know whether the yarn chosen from a fragment to match against the printed color sample is truly representative of the yarns of the whole garment, were that available.

An additional and insurmountable difficulty: We have no way of determining which of the several closely related hues was the particular one in the mind of the dyer. It is unreasonable to suppose that colors as little varied as those massed in certain areas on Tables 3–9 were deliberately striven for. The amount of water in the dye pot and the length of time the yarns or cloth was left in the dye bath would account for light and dark values of the same color. Dyeing is a tricky business. A carelessly cleaned receptacle or stirring implement can be responsible for complete changes of hue. It is, therefore, with appreciation of the many potential inaccuracies that the following section is offered.

Each portion of this monograph dealing with a subdivision of the Early Nazca collection includes an analysis of the colors which appear to have been suitable for the weavings or embroideries within it. It is planned at this point to treat of the complete range of colors.

[3] A. Maerz and M. Rea Paul, A Dictionary of Color. New York and London, 1930. Herein cited as Maerz and Paul, or Dictionary of Color.

A few excerpts from Maerz and Paul's introductory pages will make the material to be presented more clear. "The order of the colors (as shown on the plates) follows the spectrum, which is here divided into seven main groups: Red to Orange; Orange to Yellow; Yellow to Green; Green to Blue-Green; Blue-Green to Blue; Blue to Red; and Purple to Red. In each of these groups, all the colors that intervene between the stated terminals are found on a single color plate, grading, by small degrees, from the full strength of the colors into white. Each group is given eight successive plates; the first plate in full purity; the seven following plates over increasing amounts of Gray until the colors approach Black. . . .

"The plates are divided into twelve rows and twelve columns, presenting the colors in twelve degrees, from full strength of hue at one end to no hue at the other. . . ."[4]

It is possible, thanks to the mechanical arrangement of the printed color samples, to trace any one color by locating its column letter and row number on successive plates through its degrees of lightness and purity to darkness and dull grayness. During this transition color names in accepted usage change also.[5] For example, take the familiar Strawberry Pink, Plate 1 H 10. During its progress from light to dark it is known as Candy Pink 2 H 10, Coral Bell 3 H 10, Attar of Roses 4 H 10, Rosewood 5 H 10, Oakheart 6 H 10, Mauvewood 7 H 10, and finally Chocolate Brown 8 H 10. While the majority of these names are only occasionally used, they all connote Orange-Red in one or another of its variations.

The questions which arise upon viewing or working with a group of Peruvian fabrics often concern the color range. How many hues were in common use; which ones seem to have been in highest favor; were light or dark colors the rule; were certain combinations repeated often enough to suggest conventional color groupings? These questions and others may be answered with a fair degree of accuracy for the Early Nazca weavers as a result of matching 350 yarn swatches with the color samples in the Dictionary.

The Basic Color Tables (3 to 9) show the distribution of frequencies by plates. To repeat, Maerz and Paul state that the first plate of each main color group (Nos. 1, 9, 17, 25, 33, 41, 49) shows its 144 color samples in full purity, and that the successive seven plates (Nos. 2–8, 10–16, 18–24, etc.) are printed over increasing amounts of Gray until the colors approach Black. We may think, then, of the fifth plate in each group as being in middle position on the value (or light-to-dark) scale, and also in middle position on the pure-to-neutral gray scale.

The results given in the basic color tables are condensed in Table 10.

[4] *Idem*, p. 3.

[5] See Maerz and Paul's explanation of the sources of the names included in their Dictionary, p. 3.

TABLE 3

BASIC COLOR TABLE SHOWING THE MAERZ AND PAUL COLOR SAMPLES TO WHICH EARLY NAZCA FABRICS WERE MATCHED

RED-TO-ORANGE COLOR GROUP

(Maerz and Paul's plates 1–8)†

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2								8:1				7:13
3										7:1	5:2	
4					7:1							
5			7:1								5:1	
6								8:1			5:1	6:2 7:1
7												4:1 5:10 6:1 8:1
8											3:1	
9								5:1	6:1	1:5 3:1 8:1	4:1 5:5 6:5	5:2 8:3
10		1:1			4:1		4:5	4:1 6:1 7:1 8:7	4:1	3:2 4:2	5:3	5:1
11				6:2	8:1		4:1	4:1		5:1	5:2 6:7	5:12 6:2 7:1 8:2
12					8:1							

†First figure indicates plate number; figure after colon indicates number of specimens matched to sample. Therefore, 4:5 in the G 10 rectangle shows that five Early Nazca specimens corresponded in color to G 10 on plate 4.

TABLE 4

BASIC COLOR TABLE SHOWING THE MAERZ AND PAUL COLOR SAMPLES TO WHICH EARLY NAZCA FABRICS WERE MATCHED

ORANGE-TO-YELLOW COLOR GROUP

(Maerz and Paul's plates 9–16)†

	A	B	C	D	E	F	G	H	I	J	K	L
1										15:1	12:1 14:1	16:1
2			16:1				10:1				13:1	
3			11:2		16:1			15:1				
4	13:1			11:1		10:1 12:2		15:1			11:1	13:1
5				12:1		12:1				10:1	12:1	15:1
6	16:1	11:1 12:1			12:2			15:2		12:2	10:3	
7				14:1	13:2	14:1		13:3		13:1 15:1		12:5
8	12:1				15:1		14:1				11:1 13:4	12:6
9	15:1	11:1 14:1			15:1			16:1		12:2	12:3 13:1	12:5 13:6 14:1 15:1
10	15:2		15:3					11:1				13:1 14:2
11					15:1			15:1	14:1	13:3	14:1	12:2
12			15:1									16:5

† First figure indicates plate number; figure after colon indicates number of specimens matched to sample. Therefore, 15:3 in the C 10 rectangle shows that three Early Nazca specimens corresponded in color to C 10 on plate 15.

TABLE 7

BASIC COLOR TABLE SHOWING THE MAERZ AND PAUL COLOR SAMPLES TO WHICH EARLY NAZCA FABRICS WERE MATCHED

Blue-Green-to-Blue Color Group

(Maerz and Paul's plates 33–40)†

	A	B	C	D	E	F	G	H	I	J	K	L
1					39:1					37:1 39:1		
2										38:1		
3					40:1			38:1 39:6		39:2		
4					39:1			39:1				
5								40:1		40:1		
6			39:1							39:3 40:1		
7												
8					39:2					39:1 40:3		
9								39:1 40:1				
10								40:1				
11												
12												40:1

† First figure indicates plate number; figure after colon indicates number of specimens matched to sample. Therefore, 37:1 in the J 1 rectangle shows that one Early Nazca specimen corresponded in color to J 1 on plate 37.

TABLE 8

BASIC COLOR TABLE SHOWING THE MAERZ AND PAUL COLOR SAMPLES TO WHICH EARLY NAZCA FABRICS WERE MATCHED

BLUE-TO-RED COLOR GROUP

(Maerz and Paul's plates 41–48)†

	A	B	C	D	E	F	G	H	I	J	K	L
1	46:1	45:1			47:1							
2		44:1		46:1				48:1				
3				44:1								
4							46:1	47:1				
5					47:2			43:1 46:1				
6			47:1	46:1						46:1 48:1		
7									45:1			
8			48:1									
9												
10					48:1							
11												
12								48:3				48:1

† First figure indicates plate number; figure after colon indicates number of specimens matched to sample. Therefore, 45:1 in the I 7 rectangle shows that one Early Nazca specimen corresponded in color to I 7 on plate 45.

TABLE 9

BASIC COLOR TABLE SHOWING THE MAERZ AND PAUL COLOR SAMPLES TO WHICH EARLY NAZCA FABRICS WERE MATCHED

PURPLE-TO-RED COLOR GROUP

(Maerz and Paul's plates 49–56)†

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2												
3												
4												
5	56:2		56:1									
6												
7												
8												
9								56:1				
10												
11												
12												

† First figure indicates plate number; figure after colon indicates number of specimens matched to sample. Therefore, 56:2 in the A 5 rectangle shows that two Early Nazca specimens corresponded in color to A 5 on plate 56.

TABLE 10

FREQUENCY DISTRIBUTION OF COLORS OF EARLY NAZCA WOOL YARNS BASED ON MATCHING SWATCHES WITH MAERZ AND PAUL'S COLOR SAMPLES

R-to-O Pls. 1–8			O-to-Y Pls. 9–16			Y-to-Gr Pls. 17–24			Gr-to-Bl-Gr Pls. 25–32			Bl-Gr-to-Bl Pls. 33–40			Bl-to-R Pls. 41–48			P-to-R Pls. 49–56		
Pl. nos.	No. hues	No. spec.	Pl. nos.	No. hues	No. spec.	Pl. nos.	No. hues	No. spec.	Pl. nos.	No. hues	No. spec.	Pl. nos.	No. hues	No. spec.	Pl. nos.	No. hues	No. spec.	Pl. nos.	No. hues	No. spec.
LIGHT COLORS																				
1	2	6	*9*	..	..	*17*	..	..	*25*	..	..	*33*	..	..	*41*	..	..	*49*	..	..
2	..	..	*10*	4	6	*18*	..	..	*26*	..	..	*34*	..	..	*42*	..	..	*50*	..	..
3	3	4	*11*	7	8	*19*	..	..	*27*	..	..	*35*	..	..	*43*	1	1	*51*	..	..
4	9	14	*12*	15	35	*20*	2	2	*28*	..	..	*36*	..	..	*44*	2	2	*52*	..	..
MEDIUM COLORS																				
5	12	41	*13*	11	24	*21*	1	4	*29*	..	..	*37*	1	1	*45*	2	2	*53*	..	..
DARK COLORS																				
6	8	21	*14*	9	10	*22*	1	2	*30*	..	..	*38*	2	2	*46*	6	6	*54*	..	..
7	7	19	*15*	15	19	*23*	6	10	*31*	5	13	*39*	11	20	*47*	4	5	*55*	..	..
8	9	18	*16*	6	10	*24*	7	10	*32*	5	13	*40*	8	10	*48*	6	8	*56*	3	4
Tot.	50	123		67	112		17	28		10	26		22	33		21	24		3	4

The relative frequencies of light colors, medium colors, and dark colors as printed in the Dictionary and matched with yarn swatches are as 45: 27: 118 (total 190), or, in percentages, 24: 14: 62. The relative frequencies of the swatches matching these light, medium, and dark color samples are as 78: 72: 200 (total 350), or, in percentages, 22: 21: 57.

The expressed relationships answer one of the above questions: Early Nazca colors, if our collection is representative, are dark, rich colors, noticeably grayed. They convey impressions of depth and beauty.

Special mention should be made of a few swatches which are darker than the darkest of the printed color samples, and yet not devoid of color. If classified as Black, and apparently they were meant to be considered such, the term must be modified as Blue-Black for specimens 171118a, 171140c, 171141; as Brown-Black for specimens 171112, 171180d; and as Green-Black for specimen 171140b. A number of other swatches which looked Black matched samples on plates 16, 32, 40, 48, and 56. A true Black is rare in the Peruvian textiles from any period.

Animal fibers take dyes more satisfactorily than do vegetable fibers, but the fact that dyestuffs were available to afford a range of 190 colors suggests that the Early Nazcans left their cotton undyed through choice rather than necessity. Probably some examples of Natural Brown have been entered on Tables 3–9, although the color seems also to have been duplicated in dyes and used for both cottons and wools. "White" cotton always has a creamy tint, yet various swatches, assuredly natural, matched color samples 11 E 5 and 12 E 6. The natural Browns are more varied, and about them there is much less certainty.

Wear, exposure, deterioration, and stains change the original color of a garment. Even granted that the Browns or "Whites" entered on the basic tables are natural instead of dyed, the interpretation for the few examples does little to disturb conclusions drawn for the whole group. The section on striped mantles contains a more detailed analysis of the Brown cotton yarns.

The cotton specimens dyed light, medium, and dark hues form a progressive series related as 3:4:12, with percentage ratios 16:21:63 (Table 11). These do not differ greatly from the findings for the whole group.

TABLE 11

FREQUENCY DISTRIBUTION OF COLORS OF EARLY NAZCA COTTON YARNS BASED ON MATCHING SWATCHES WITH MAERZ AND PAUL'S COLOR SAMPLES

	R-to-O		O-to-Y		Gr-to-Bl-Gr		Bl-Gr-to-Bl		Bl-to-R	
	Plates	No. spec.	Plates	No. spec.	Plates	No. spec.	Plates	No. spec.	Plates	No. spec.
Light colors			12 B 6 12 E 6	1 2					44 D 3	1
Medium colors	5 K 3	1	13 A 4 13 E 7 13 K 9	1 2 1						
Dark colors	6 K 9	1	14 G 8 15 C 10 15 E 9 15 E 11 15 H 6	1 2 1 1 2	31 H 2	1	39 C 6	1		
	8 J 9 8 L 9 8 L 11	1 2 1	16 E 3	1						

The Early Nazca color range with its total of 190 hues, by comparison with Maerz and Paul's 7,056 printed color samples, seems extremely limited, but, as will be developed later, the weaver and embroiderer made use of certain combinations which might have been fulfilled by a much smaller number. This is especially true of the embroidered and needle-knitted specimens. Even a cursory survey of the basic tables shows that the majority of the Nazca hues are to be described in terms of Red, Orange, and Yellow. The color samples on a single plate in the Red-to-Orange group of eight and on one in the Orange-to-Yellow group lacked yarn swatches to match them. The greatest number of color samples lacking equivalents among the fabrics are within the Green-to-Blue-Green, Blue-Green-to-Blue, and Purple-to-Red groups, each of which contains a preponderance of Blue.

The paragraphs to follow deal with each of Maerz and Paul's seven major color groups, identify hues within them by names in familiar usage, and point out the equivalences between the Early Nazca colors and the printed samples in the Dictionary.

SEVEN MAJOR COLOR GROUPS

RED-TO-ORANGE COLOR GROUP

This group contains many colors with familiar names, a few of which are given in order that the column letters and row numbers of the tables may take on more specific meanings (Table 12). Light Red, or Pink, is a well-established name "vaguely applied to pale reddish tones of indefinite character."[6] Oddly enough, only one of the three dozen color samples labeled Pink on plates throughout the Dictionary was matched exactly by yarn swatches, and that one (1 C 10) is definitely a pale Red-Orange. Another color referred to as "Rose," a name "which cannot be restricted to any specific color,"[7] has even more printed samples bearing its name than has Pink. Three samples have been matched by several of the Early

[6] Dictionary of Color, p. 173.

[7] *Idem*, p. 177.

Nazca yarns: 1 J 9, 3 K 8, 4 H 10. Other light Red-to-Orange yarns are like Coral Red (3 J 10) and Etruscan Red (4 F 11).

Medium Red-to-Orange colors among the swatches either match or are similar to Cardinal (5 L 5), Moroccan, and Brick-dust Reds (5 K 11 and 5 L 11).

Dark Red-to-Orange hues printed over increasing amounts of Gray to dull them are well represented among the Early Nazca textiles. Swatches match or are similar in color to Ruby (6 L 6), dark Cardinal (6 L 8), Indian Red (6 L 12), old Amethyst (7 C 5), Maroon (7 L 7), and Chocolate (8 H 10).

TABLE 12

RED-TO-ORANGE GROUP

(Plates 1–8)†

Light colors: Plates 1–4												
	A	B	C	D	E	F	G	H	I	J	K	L
1												
2												
3												
4												
5												
6												
7												1
8											1	
9										2	1	
10			1		1			1	1	1	2	
11							1	1				
12												
Total number hues												14
Total number specimens matched												24

Medium colors: Plate 5												
	A	B	C	D	E	F	G	H	I	J	K	L
1												
2												
3											1‡	
4												
5											1	
6											1	
7												1
8												
9								1			1	1
10											1	1
11										1	1	1
12												
Total number hues												12
Total number specimens matched												41

Dark colors: Plates 6–8												
	A	B	C	D	E	F	G	H	I	J	K	L
1												
2								1				1
3										1		
4					1							
5		1										
6								1				2
7												2
8												
9									1	1	1	1
10								3				
11				1	1						1	3
12					1							
Total number hues												24
Total number specimens matched												58

† Maerz and Paul, Dictionary of Color.

‡ Figures indicate that yarn swatches have been matched to color samples in the same relative positions on one, two, or three plates within the light, medium, and dark series.

The three charts (Table 12) show the distribution of light colors as presented in the Dictionary on plates 1–4, medium colors, on plate 5, and dark colors, on plates 6–8. More striking than the numerical preponderance of the dark Red-to-Orange hues is their range. By comparison with both the light and medium colors which are pretty well massed within the Red-Orange and Orange sections of the plates, one-third of the dark Red-to-Orange hues are to be found above the point where Orange becomes a factor, actually in the Purplish Red-to-Red subdivisions.[8] The names Ruby, Garnet, and Amethyst indicate Purplish Red in contrast to Maroon and Chocolate which are Reddish Orange hues.

Five of the six dyed cottons falling within this color group were matched to the dark hues of the series.

[8] Maerz and Paul state (p. 3) that it "was found necessary to use two Reds; . . . owing to the nearness of the colors in hue, the two subdivisions appear in one group, called above, briefly, Red to Orange, but really a purplish Red to Red and Red to Orange."

ORANGE-TO-YELLOW COLOR GROUP

This group contains the largest number of hues to which yarn swatches could be matched (Table 13). Some of its light colors are known as Straw (10 F 2), Chinese Yellow (10 K 6), Topaz (12 J 8), and Tan (12 L 11). Medium Orange-to-Yellow colors are Gravel (13 A 4), Khaki (13 J 7), and Hazel (13 J 9). The dark grayed Orange-to-Yellow colors are Old Gold (14 K 5), Gold Brown (14 F 12), Russet Brown (14 I 12), Olive Drab (15 J 5), the Umbers (15 A 12 and 15 L 12), and Sagebrush Green (16 E 5). These few, chosen from the many within the group with accepted names, were matched in most instances with Early Nazca yarns.

The swatches matching light and dark colors in the Orange-to-Yellow group were almost equally balanced. As the charts show, the distribution is without conspicuous massing in any quarter, and it is indeed difficult to make determinations for some swatches. A number of the yarns matching the dark hues in the group looked Black.

The dyed cotton cloths loom large among the totals for this group due mainly to the fact that the Brown and White striped mantle fragments are included. The relationship in terms of light, medium, and dark cotton yarns is as 2: 3: 8; in percentages, 15: 23: 62.

TABLE 13

ORANGE-TO-YELLOW GROUP

(Plates 9–16)†

Light colors: Plates 9–12												
	A	B	C	D	E	F	G	H	I	J	K	L
1											1	
2							1					
3			1									
4				1		2					1	
5				1		1				1	1	
6		2			1					1	1	
7												1
8	1										1	1
9		1								1	1	1
10								1				
11												1
12												
Total number hues												26
Total number specimens matched												49

Medium colors: Plate 13												
	A	B	C	D	E	F	G	H	I	J	K	L
1												
2											1	
3												
4	1											1
5												
6												
7					1			1		1		
8											1	
9											1	1
10												1
11										1		
12												
												11
												24

Dark colors: Plates 14–16												
	A	B	C	D	E	F	G	H	I	J	K	L
1										1	1	1
2			1									
3					1			1				
4								1				
5												1
6	1							1				
7				1		1				1		
8					1		1					
9	1	1			1			1				2
10	1		1									1
11					1			1	1		1	
12			1									1
												30
												39

† See footnotes under Red-to-Orange Color Group, Table 12.

YELLOW-TO-GREEN COLOR GROUP

The light and medium colors in this group (Table 14) are almost completely unrepresented by Early Nazca swatches, which contained nothing approximating Spring Green (18 J 7), Pistachio, or Apple Green (19 C 6 and 19 J 6). Swatches similar to the light Yellow-Greens known as Pea Green (20 G 6) and Grass Green (21 L 5) were found, and the dark Yellow-to-Green colors were matched many times by yarns similar to Reseda (22 K 1), Lincoln (23 J 4), and Hunter Green (24 C 11). The majority of the Early Nazca yarns are to be described as Yellowish-Green rather than as Green or Bluish-Green.

TABLE 14

YELLOW-TO-GREEN GROUP

(Plates 17–24)†

Light colors: Plates 17–20												
	A	B	C	D	E	F	G	H	I	J	K	L
1												
2												
3												
4												
5				1								
6						1						
7												
8												
9												
10												
11												
12												
Total number hues	2											
Total number specimens matched	2											

Medium colors: Plate 21												
	A	B	C	D	E	F	G	H	I	J	K	L
1												
2												
3												
4										1		
5												
6												
7												
8												
9												
10												
11												
12												
Total number hues	1											
Total number specimens matched	4											

Dark colors: Plates 22–24												
	A	B	C	D	E	F	G	H	I	J	K	L
1									1	1		1
2												1
3												
4								1		1		1
5					1							
6	1											1
7	1											
8					1							
9												
10												
11					1					1		
12												
Total number hues	14											
Total number specimens matched	22											

†See footnotes under Red-to-Orange Color Group, Table 12.

GREEN-TO-BLUE-GREEN COLOR GROUP

Light and medium colors of this group are without a single representative among the 350 Early Nazca yarns (Table 15). This seems all the more remarkable from the point of view of the modern colorist who accepts the more or less pure Turquoise Blue (25 J 2) and Emerald Green (26 C 11) as part of a familiar color range. The colors of this group, mostly unnamed, for which there were equivalents among the yarn swatches are both dark and dull: Thyme Green (31 E 6), Poplar Green (31 C 8), Jasper Green (32 H 9).

TABLE 15

GREEN-TO-BLUE-GREEN GROUP

(Plates 25–32)†

Dark colors: Plates 30–32												
	A	B	C	D	E	F	G	H	I	J	K	L
1												
2								1				
3												
4												
5										1		
6			1		1			1		1		
7			1									
8			2									
9								1				
10												
11												
12												
Total number hues	10											
Total number specimens matched	26											

† See footnotes under Red-to-Orange Color Group, Table 12.

BLUE-GREEN-TO-BLUE COLOR GROUP

This group, as in the case of the preceding Green-to-Blue-Green group presents plate after plate of color samples for which there are no equivalents among the Early Nazca yarns (Table 16). There are no so-called Light Blues (six graded steps of which have been standardized by the Textile Color Card Association of the United States), no Cobalt Blue (34 L 7), Blue Bird (36 J 9), nor anything like these pure light hues. Three swatches (one 38 J 2, unnamed) are approximately medium Blue-Green. The bulk of the representatives are low, dark colors similar to Slate (39 A 7), Flemish Blue (39 E 10), and Navy (40 E 11). As may be seen by the chart, the frequencies are massed within the Blue-Green rather than the Blue portions of the plates.

TABLE 16

BLUE-GREEN-TO-BLUE GROUP

(Plates 33–40)†

	Medium colors: Plate 37												Dark colors: Plates 38–40											
	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L
1										1							1					1		
2																						1		
3																	1			2		1		
4																	1			1				
5																				1		1		
6															1							2		
7																								
8																	1					2		
9																				2				
10																				1				
11																								
12																							1	
Total number hues	1												21											
Total number specimens matched	1												32											

† See footnotes under Red-to-Orange Color Group, Table 12.

BLUE-TO-RED COLOR GROUP

The colors within this series contain Red in varying amounts, and seem, therefore, either to have been more easily obtainable, or to have been in greater favor than were those without a reddish tinge. The lighter colors of the group, Orchid (41 F 5), Wistaria (41 E 8), Pansy (41 K 12), and Cornflower (42 C 10), are without representatives among the Early Nazca yarns matched to the samples (Table 17). A light Bluish Red, unnamed (43 H 5), and two more similar to Heliotrope Gray (44 C 3) were found. The medium colors of this series were also lacking, in the main. One matched yarn was identical to Dove Gray (45 B 1), and a second similar to Amethyst (45 J 8). The dark colors of the Blue-to-Red group were matched by many yarns. Bluish Reds are not common among Peruvian textiles of any period, the nearest approach in most instances being the Rose hues. But among the Cahuachi garments there are several examples of Purple. From the quantity standpoint, the Mauves and Slates are not noticeable, but where they do appear they stand out by reason of their rarity. The largest amounts are to be found in the flower-motive Cahuachi mantle 171222. It may be that in a collection representing more Early Nazca sites, Mauve would serve to identify an Early textile as surely as the strong rich Blues confirm the age of a fabric of the Tiahuanaco period.[9]

[9] Textile Periods, p. 42.

The best-known names for the dark colors in the series are Old Mauve (46 I 5), Blue Fox (47 E 1), Slate (47 C 6), Gunmetal (48 C 2), and Egg Plant (48 H 12). Some of these colors are identical to those found among the Early Nazca yarns.

TABLE 17

BLUE-TO-RED COLOR GROUP

(Plates 41–48)†

Light colors: Plates 41–44												
	A	B	C	D	E	F	G	H	I	J	K	L
1												
2		1										
3				1								
4												
5								1				
6												
7												
8												
9												
10												
11												
12												
Total number hues	3											
Total number specimens matched	3											

Medium colors: Plate 45												
	A	B	C	D	E	F	G	H	I	J	K	L
1		1										
2												
3												
4												
5												
6												
7									1			
8												
9												
10												
11												
12												
Total number hues	2											
Total number specimens matched	2											

Dark colors: Plates 46–48												
	A	B	C	D	E	F	G	H	I	J	K	L
1	1				1							
2				1				1				
3												
4							1	1				
5					1			1				
6			1	1						2		
7												
8			1									
9												
10					1							
11												
12								1				1
Total number hues	16											
Total number specimens matched	19											

† See footnotes under Red-to-Orange Color Group, Table 12.

PURPLE-TO-RED COLOR GROUP

Although this series of colors has only three for which equivalents were found among the Early Nazca fabrics, the relationship to the more familiar Reds is close (Table 18).

TABLE 18

PURPLE-TO-RED COLOR GROUP

(Plates 49–56)†

Dark colors: Plates 54–56												
	A	B	C	D	E	F	G	H	I	J	K	L
1												
2												
3												
4												
5	1		1									
6												
7												
8												
9								1				
10												
11												
12												
Total number hues	3											
Total number specimens matched	4											

† See footnotes under Red-to-Orange Color Group, Table 12.

It does seem worthy of note that within 350 matched swatches there should be none similar to Fuchsia (50 I 12), Magenta (52 K 12), Hollyhock Red (53 K 11), Heliotrope (54 C 10), or other of the light and medium Purple Reds. The three examples found are from the darkest and dullest of the Purple Reds—one of them Old Burgundy (56 H 9)—and appear to be Black until matched to the color samples.

Summary Table 19 records the results of matching 350 colored yarns and fabric swatches against the printed samples in the Dictionary. It shows the preponderance of hues within certain of the Color Groups from two angles: that of the actual number of hues—light, medium, and dark—for which equivalents were found among the Early Nazca yarns, and that of the actual number of specimens falling within each Color Group. It proves for the available data that the dark hues represented outnumber the combined number of light and medium hues, and that over half of the yarn specimens matched to the printed samples fall within the dark classification. What mere figures cannot tell, and what printed samples can only suggest, is the very real beauty of the dyed wool yarns, the luster and the depth of the colors. For these Early Nazca colors merit every superlative which has been used for those of the later periods. There are no streaky yarns, so far as one can determine, and no other evidences of feeble or inept attempts to arrive at definite results. The Early period colors, as well as the techniques, prove that we are still a long way from the beginnings of the textile art in Peru.

TABLE 19

SUMMARY TABULATION OF HUES REPRESENTED AMONG EARLY NAZCA FABRICS

	HUES REPRESENTED			PERCENTAGES			SPECIMENS MATCHED			PERCENTAGES		
	Light	Medium	Dark	Light	Medium	Dark	Light	Medium	Dark	Light	Medium	Dark
Red-to-Orange	14	12	24	28	24	48	24	41	58	19	33	47
Orange-to-Yellow	26	11	30	39	16	45	49	24	39	43	22	35
Yellow-to-Green	2	1	14	12	6	82	2	4	22	7	13	80
Green-to-Blue-Green	0	0	10	..	..	100	0	0	26	..	..	100
Blue-Green-to-Blue	0	1	21	..	5	95	0	1	32	..	3	97
Blue-to-Red	3	2	16	14	10	76	3	2	19	13	8	79
Purple-to-Red	0	0	3	..	..	100	0	0	4	..	..	100
Totals	45	27	118	..	..	..	78	72	200	..	..	..
Percentages	24	14	62	..	..	..	22	21	57	..	..	..

EARLY NAZCA YARNS

It is axiomatic that fine textiles demand finely spun yarns, and that finely spun yarns depend upon fiber quality and skillful manipulation. The ancient Peruvians had both white and brown cottons, the former whiter, a little longer, and more even in structure than the latter. Crawford remarks that the brown cotton "is claimed by some authorities to be a sport of the former and not a separate species, its reddish color being an indication of a reversion to a wild type."[10] Means refers to "natural shades: white, brown, and blue or grayish blue, the latter two being due to the action of a pest which attacks the cotton boll."[11]

Although Crawford described a group of technically interesting fabrics without regard for their chronological relationships, his generalizations as to the quality of the old Peruvian yarns with few exceptions apply to the yarns in the Early Nazca pieces of the Field Museum collections. Especially did he note the evenness of the spinning, the intentional insertion of a great degree of twist in some yarns, and the lesser amount of twist in others. The heavily twisted yarns give a crêpe texture to the fabric, while the yarns less heavily twisted have "bite" enough to keep them in place in open voile-like fabrics.[12]

[10] M. D. C. Crawford, Peruvian Textiles, Amer. Mus. Nat. Hist., Anthr. Papers, vol. 12, p. 64, 1915.
[11] P. A. Means, A Study of Peruvian Textiles in the Museum of Fine Arts, Boston, p. 41, 1932.
[12] *Idem*, pp. 77–81.

EARLY NAZCA MANTLES

The mantle is not only the largest of the Early Nazca garments, but seems also to have been the one upon which the greatest amount of technical skill and artistic effort was expended. This conclusion is based upon a relatively small number of specimens furnishing complete dimensions together with those fragments which sufficiently resemble mantles in size, texture, color, or decoration to be allocated to the group. The preponderance in numbers of this latter series may be seen by comparing Tables 20 and 21.

TABLE 20

BASIC TABLE: MANTLE TYPES, DIMENSIONS, AND WARP-WEFT COUNTS PER INCH

	Specimen number	Full length (inches)	Frag. length (inches)	Full width (inches)	Frag. width (inches)	Prop. W : L	Warps per inch	Wefts per inch
Plain weaves, undecorated	170476a		43	16			32	18
	171118d		10		9		26	26
	171182a	56		48		0.857	22	26
	171182b		27	25			28	34
	171213		30		25		28	24
	171214	55		45†		0.818	36	36
	171217b[1]		22		14		26	26
	171217b[2]		16		21		36	26
	171219b		27	26			40	38
	171305a	68		52†		0.764	34	30
Striped	170465b		10	27			42	16
	170465d		x‡		x		36	20
	170665	44			9		32	26
	171183		x		x		80	22
	171262	60		52†		0.866	26	24
	171265	48		38		0.791	22	22
	171305b		27	36			34	32
	171310		66		37†		34	14
	171311		x		x		34	26
Embroidered (or brocaded)	170465a		24	37*			58	32
	171216	57		47.5		0.833	28	34
	171218a**		38		44.5		28	26
	171219a**	80(?)	30.5	65	38.5	0.821	26	26
	171220**		25		33		26	24
	171222	50		41.5		0.83	28	24
Needleknitted edge	171112		36	14			34	28
	171223a	52			34†	0.961	38	34
	171224	50			45†	1.00	40	40
	171237		39	28			32	30
	171309		x		x		36	36
Pattern weave	171119	40		40†		1.00	26	26
	171218b		9		26.5		24	24
	171279a		32		38†		28	36
Gauze	171110		32		9		30	24
Miscellaneous	171221		24	70†			28	32

† Formed of two breadths, seamed together.

‡ The x indicates small fragments of unimportant dimensions; specimen 171309 badly charred.

* Single breadth of two-breadth mantle, judging by the needleholes the full length of one side edge.

** Fragments of single mantle herein considered as one specimen, Cahuachi 171220. See description in section on Brocaded and Embroidered Mantles.

Table 20 lists every specimen which with little or no doubt can be classified as a mantle. Table 21 summarizes by counts those assumedly identifiable specimens, and also those fragments which have been arbitrarily allocated to the different mantle sub-groups.

TABLE 21

SUMMARY TABLE OF MANTLE SPECIMENS

	Full length specimens	Full width specimens	Complete dimensions	Incomplete dimensions	Arbitrarily† allocated	Total in group
Plain weave, undecorated	3	5	3	7	13	23
Plain weave, striped: cotton	..	2	..	5	..	5
Plain weave, striped: wool	3	3	2	2	3	7
Plain weave, embroidered or brocaded	3	4	3	1	1	5‡
Plain weave, needleknitted edge	2	4	2	3	17	22
Plain weave, pattern-weave borders	1	2	1	2	..	3
Gauze weave	..	..	..	1	2	3
Miscellaneous						
"Patchwork"	..	..	..	..	2	..
Interlocked wefts	..	..	..	..	1	..
Painted	..	..	..	..	1	..
Twined	..	1	..	1	..	5
Totals	12	21	11	22	40	73

† Allocations based upon technological and stylistic features; specimens in this column do not appear in yarn count, Table 20.

‡ See Table 20, footnote **.

MANTLE DIMENSIONS

Table 20 lists the several mantle types with the dimensions and warp-weft counts for each specimen. Generalizations based upon this table are made with full recognition of the subjective element which necessarily entered into the allocation of the fragmentary specimens. The complete lengths of twelve out of the thirty-three[13] mantles show a range through 40″ with intervals as follows: 40″, 44″, 48″, 50″, 50″, 52″, 55″, 56″, 57″, 60″, 68″, 80″(?). Median approximately 53″.

Complete widths are preserved for twenty-three out of the thirty-three mantles, assuming for five of the specimens that a full breadth plus a fragment of a second breadth seamed to it justifies an inference that the original mantle was twice the width of the full breadth. The complete widths inferred from such evidence are indicated by an asterisk. The range extends through 60″ (median 41″–45″) with intervals as follows: 14″, 16″, 25″, 25″, 26″, 27″, 28″, 36″, 38″, 40″ (20″+20″), 41.5″, 45″ (22″+23″), *45″ (22.5″+frag. 14.5″), *46″ (23″+frag. 15″), 47.5″, 48″, *50″ (25″+frag. 9″), *50″ (25″+frag. 20″), 52″ (25″+27″), 52″ (26″+26″), 65″, 70″ (35″+35″), *74″ (37″+?″).

These same figures present another feature of Early Nazca weavings: the variations in measurements between single breadths of the same mantle. Over half of the complete mantle widths represent a single set-up of the warps, and the remainder represent two narrow webs seamed together to form the desired size. Omitting from consideration the fragmentary webs for which inferences have been made, the measurements of single fabric breadths range through 51″, with intervals as follows: 14″, 16″, 20″ (2 specimens), 22″, 22.5″, 23″ (2 specimens), 25″ (5 specimens), 26″ (3 specimens), 27″ (2 specimens), 28″, 35″ (2 specimens), 36″, 37″, 38″, 41.5″, 47.5″, 48″, 65″. Median 26″.

[13] See Table 20, footnote **.

About a third of the Early Nazca mantles are complete both as to length and width measurements. Listed in the order of proportions of width to length they are as follows:

TABLE 22

WIDTH-TO-LENGTH PROPORTION OF MANTLES

Specimen number	Type	Length (inches)	Width (inches)	Proportion W:L
171305a	Plain	68	25+27	0.764
171265	Striped	48	38	0.791
171218a, 171219a, 171220	Embroidered	80†	65	0.812
171214	Plain	55	22+23	0.818
171222	Embroidered	50	41.5	0.83
171216	Embroidered	57	47.5	0.833
171182a	Plain	56	48	0.857
171262	Striped	60	26+26	0.866
171223a	Needleknitted edge	52	25+25‡	0.961
171224	Needleknitted edge	50	25+25‡	1.0
171119	Pattern	40	20+20	1.0

† Inferred complete length; see section on Embroidered Mantles.
‡ Inferred width of second breadth.

MANTLE WARP-WEFT YARN COUNTS

Theoretically, the fineness or coarseness of a piece of fabric is determined by the number of warps and wefts per inch. In reality, "fineness" and "coarseness" are relative terms, and one must know more than the actual counts involved. For instance, 18 warps and 18 wefts per inch might, in the case of one specimen, indicate a coarse material made of heavy yarns, although for another it might indicate, as it does in specimens 170211c[1-2], that the yarns were fine but widely spaced in the warp set-up and loosely battened during the weaving. Hence, it is desirable to compare textures as well as counts. Another factor in the analysis of archaeological material makes for less accuracy than could be desired: a cloth from modern looms can be held tautly at approximately the same tension that it was during the weaving, but no such tension is practicable, or even possible, in handling most of the ancient pieces. Consequently, one may be able to count the yarns more accurately in the pieces in good condition. A third factor must also be considered: the quality of hand weaving varies in different parts of the fabric, sometimes markedly. As a rule, counts taken in several different places on the web, choosing always the best-preserved portions, is a fairly accurate method, but even with that precaution it is at times necessary to average warp counts running 30, 32, 36, 44, and weft counts 30, 32, 36 per inch as found in mantle specimen 171223a. In some pieces the variance is due to uneven beating up of the weft yarns, and in others to uneven spinning. Since textures are difficult to describe in terms which will mean the same to all readers, Table 23 simply presents the counts for the thirty-three mantle specimens in the order of the number of warps, together with the ply-composition analysis of the weaving yarns.

The mantle group is large enough to provide a representative sample of Early Nazca weavings. Table 23 shows that, beginning with 22 warps per inch, the progression is regularly by 2's up to and including 42; median 32.

Weft counts per inch range from 14 through 40, median 26, a difference of 26 points as against the difference of 62 points in the warp counts. The sequence of weft counts is as follows: 14, 16, 18, 20, 22 (twice), 24 (5 times), 26 (8 times), 28, 30 (twice), 32, 34, 36 (each 3 times), 38, 40. Median 26.

There are only three possible relationships between the number of warps and the number of wefts per inch in a fabric: they balance each other in number, in "square count"

fabrics; the warps outnumber the wefts in "warp face" fabrics; or the wefts outnumber the warps in "weft face" fabrics. The latter type is best illustrated by the tapestries, in which the warps are completely covered by the wefts. For the Early Nazca collection the relationships between square count, warp face, and weft face in the mantles (9:19:5) may be expressed in percentages as follows: 27:58:15. The warps outnumber the wefts per inch within a wide range: 2 and 4 (each 4 times), 6 (3 times), 8, 10, 14, 16, 20, 26 (twice), 58. The wefts outnumber the warps with unappreciable differences between them of 4, 6, or 8 per inch. Apparently weft-face fabrics were not intentionally made, but resulted from accidentally battening the weft yarns too vigorously.

TABLE 23

SEQUENCE OF MANTLE WARP-WEFT COUNTS; YARN STRUCTURE AND COMPOSITION

Plain	Striped	Brocaded and embr.	Needle-knitted	Pattern	Gauze	Misc.	Warp count per inch				Weft count per inch			
							C1‡	C2	W1	W2	C1‡	C2	W1	W2
..	x	..	..	..	..	..	..	..	22	22	..	..	22	22
x	..	..	..	..	..	..	..	22	..	..	..	26	..	..
..	..	..	..	x	..	..	..	24	..	..	..	24	..	..
..	x	..	..	..	..	..	..	..	26	26	..	..	24	24
..	..	..	..	x	..	..	..	26	..	..	..	26	..	..
..	..	x†	..	..	..	..	..	26	..	..	..	26	..	..
x	..	..	..	..	..	..	..	26	..	..	..	26	..	..
x	..	..	..	..	..	..	..	26	..	..	..	26	..	..
x	..	..	..	..	..	..	..	28	..	..	..	24	..	..
..	..	x	..	..	..	..	..	28	..	..	..	24	..	..
..	..	..	..	..	..	x	..	28	..	..	..	32	..	..
..	..	x	..	..	..	..	..	28	..	..	..	34	..	..
x	..	..	..	..	..	..	..	28	..	..	..	34	..	..
..	..	..	..	x	..	..	..	28	..	..	..	36	..	..
..	..	..	..	..	x	..	..	30	..	..	..	24	..	..
x	..	..	..	..	..	..	32	..	..	..	18	..	..	..
..	x	..	..	..	..	..	..	..	..	32	..	..	..	26
..	..	..	x	..	..	..	..	32	..	..	..	30	..	..
..	x	..	..	..	..	..	..	..	..	34	..	..	..	14
..	x	..	..	..	..	..	..	34	..	..	..	26	..	..
..	..	..	x	..	..	..	..	34	..	..	..	28	..	..
x	..	..	..	..	..	..	..	34	..	..	..	30	..	..
..	x	..	..	..	..	..	..	34	..	..	..	32	..	..
..	x	..	..	..	..	..	..	36	..	..	..	20	..	..
x	..	..	..	..	..	..	..	36	..	..	..	26	..	..
x	..	..	..	..	..	..	..	36	..	..	..	36	..	..
..	..	..	x	..	..	..	..	36	..	..	..	36	..	..
..	..	..	x	..	..	..	..	38	..	..	..	34	..	..
x	..	..	..	..	..	..	..	40	..	..	..	38	..	..
..	..	..	x	..	..	..	..	40	..	..	..	40	..	..
..	x	..	..	..	..	..	..	42	..	..	..	16	..	..
..	..	x	..	..	..	..	..	58	..	..	..	32	..	..
..	x	..	..	..	..	..	..	80	..	..	..	22	..	..

† See Table 20, footnote **.

‡ Cotton or wool fiber indicated by letter; number of ply by figure. C1 means single-ply cotton yarn; W2 means two-ply wool yarn.

CORRELATION BETWEEN MANTLE TYPES AND WARP-WEFT COUNTS

One might reasonably expect to find some specific degree of quality as indicated by the yarn counts in Table 23 associated with mantles of particular types. Perhaps with a greater number of complete specimens this correlation could be demonstrated, but with the available material it is possible only to suggest certain relationships (Table 24).

(1) The mantles listed as plain, undecorated, represent an assortment of filmy textures and muslins whose warp counts show them to be almost equally divided on either side of

the complete group median, 32 per inch, although the weft counts are preponderantly higher than the group median, 26.

(2) The nine striped mantle specimens are as varied in count as the plain, undecorated ones, but with them texture and yarn fiber must be considered. Counts for the unusual all-wool mantles of looser weave are on the coarse side of the complete group median, but all the counts of the warp face cotton mantles are on the fine side.

(3) Three of the four embroidered mantles, and the three scrim-like mantles with pattern-weave borders, have counts within a narrow range, but the number of specimens is too small in both instances to justify drawing conclusions.

(4) The single mantle type which does consistently seem to have been made of high-count materials is that with the needleknitted edges, to judge from five examples. This form of decoration is by far the most elaborate and time-consuming of all the forms found in the Early Nazca collection. It is conceivable that some of the finer fabrics among the unidentifiable fragments were originally woven for mantles edged with needleknitted fringes.

TABLE 24

CORRELATION BETWEEN MANTLE TYPES AND WARP-WEFT COUNTS PER INCH

Plain, undecorated	Striped	Embroidered and brocaded	Needleknitted edge	Pattern border	Miscellaneous
22 x 26	22 x 22†	.....	.....	.....	.....
.....	.....	.....	.....	24 x 24	.....
26 x 26	26 x 24†	26 x 26	.....	26 x 26	.....
26 x 26	.....	.....	.....	.....	.....
28 x 24	.....	28 x 24	.....	.....	28 x 32
28 x 34	.....	28 x 34	.....	28 x 36	.....
.....	.....	.....	.....	.....	30 x 24
32 x 18‡	32 x 26*	.....	32 x 30	.....	.....
.....	34 x 14*	.....	.....	.....	.....
34 x 30	34 x 26	.....	34 x 28	.....	.....
.....	34 x 32	.....	.....	.....	.....
36 x 26	36 x 20	.....	.....	.....	.....
36 x 36	.....	.....	36 x 36	.....	.....
.....	.....	.....	38 x 34	.....	.....
40 x 38	.....	.....	.....	.....	.....
.....	.....	.....	40 x 40	.....	.....
.....	42 x 16	.....	.....	.....	.....
.....	.....	58 x 32	.....	.....	.....
.....	80 x 22	.....	.....	.....	.....

† Yarns single-ply wool and two-ply wool in warps and wefts.
‡ Single-ply cotton yarns in both warps and wefts.
* Two-ply wool yarns in both warps and wefts.

MANTLE YARNS

Wool and cotton yarns of both single-ply and two-ply construction are found in the mantles. The ratio of all-cotton to all-wool specimens is as 29:4. There are no union cotton-wool basic webs in the group of identifiable mantles. In the all-cotton group, one specimen, mantle 170476a, is woven of single-ply cotton; two of the all-wool striped mantles are woven of single-ply and two-ply wools, and the remaining 28 mantle webs are of two-ply cotton.

The most important point concerning the yarn composition of these Early Nazca mantles is that wool invariably appears as decorative yarn wherever there is embroidery, needle-knitted edges, or pattern-weave borders. The all-cotton mantle with brightly colored wool decoration was obviously a convention or a choice rather than a necessity dictated by a limited wool supply. The few all-wool mantles do seem more elegant garments because of

their striking colors, but that judgment is based entirely upon an appreciation of efforts which may or may not have been so highly esteemed by the native weavers.

PLAIN WEAVE UNDECORATED MANTLES

Were we dealing with complete garments instead of arbitrarily allocated fragments in more than half the cases, this largest group of specimens might prove to include examples of embroidered, patterned, or other mantle types. Structurally, there is nothing except its texture and color to differentiate one of these all-cotton fabrics from the rest. But the texture does vary sufficiently to necessitate the use of different descriptive words: filmy crêpes and voiles for the sheer fabrics made of tightly twisted yarns (170476a), loosely woven materials of medium twist yarns, similar to the heavier qualities of our coarse muslins (171214, 171217b[1-2] [Frontispiece, Plate XXXII], 171219b), and crashes identical to some Osnaburg, and also to the modern hand-woven "Ghandi" cloths of India (171213, 171305a).[14]

Half of the mantle fragments, including one complete specimen (171214), are dyed, a fact which suggests that the colored cotton mantles may have been left undecorated. Mantle 171214 has the appearance and texture of a good piece of modern crash, evenly woven, and with noticeably well-managed side selvages. This mantle is also an example of loom joining or fine seaming in that an extra yarn draws together the two edges by engaging single weft turns as shown in Plate LXVII*f*. The colors of the dyed mantles are all medium or dark on the value scale: two Brownish Rose hues, 6 J 9 and 6 K 9 (171217b[1] and 171213), Heliotrope Gray, 44 D 3 (170476a)—the Reddish Purple referred to in the section on color as one means of identification for the Nazca Valley textiles of this Early period—a Bluish Green, 31 H 2 (171214), and a dark Gray Blue, 39 C 6 (171118d). The remaining plain weave undecorated mantles are White or Natural Brown cotton (8 L 9 and 8 L 11).

PLAIN WEAVE UNIDENTIFIABLE GARMENT MATERIALS

Table 25 records the principal items relating to a group of all-cotton fragments which may or may not have been mantles, veils, tunics, kerchiefs, or wrapping cloths. The dimensions tell nothing for any of them. Since the pieces are without edge finishes or other form of decoration, there is no possible means of identifying them. Their place in this study is to show what variations in textural appearance result from choices of yarns.

TABLE 25

UNIDENTIFIABLE PLAIN WEAVE FRAGMENTS

Specimen number	Warps per inch		Wefts per inch		Square count	Warps per inch in excess of wefts	Wefts per inch in excess of warps	Texture	Color
	C1†	C2	C1	C2					
170211h	..	30	..	30	x	..	..	Coarse muslin	White
170211i	..	34	..	40	..	..	6	Fine scrim	White
170413a	28	..	24	..	..	4	..	Filmy	White
170413b	..	42	..	22	..	20	..	Canvas	Brown
170462a	..	44	..	22	..	22	..	Canvas	Brown
170465c	..	38‡	..	24	..	14	..	Canvas	Brown
170476b	30	..	24	..	..	6	..	Filmy	Dyed
170677a	28	..	22	..	..	6	..	Filmy	White
170677b	34	..	28	..	..	6	..	Filmy	Dyed
171055	..	48	..	16	..	32	..	Canvas	Brown?
171071a[2]	..	38	..	30	..	8	..	Muslin	White
171238a	..	28	..	28	x	..	..	Muslin	White
171267a	..	22	..	18	..	6	..	Coarse muslin	White

† See footnote ‡, Table 23.

‡ The warp and weft counts given are averages of the counts of the two breadths of material forming the fragment: 36 x 20 and 40 x 26.

[14] See Henry W. Nichols and William H. Broomhead, Standard Cotton Cloths and Their Construction, Fall River, Mass., 1927, for brief descriptions and fabric swatches.

These unidentifiable pieces are best characterized by their textures. The single-ply filmy fabrics have warp counts which differ from the weft counts by four or six yarns per inch, and two of the muslin-like materials are square count, but the canvas-like materials are noticeably warp face, the warps outnumbering the wefts by 14, 22, 24, and 32 per inch.

The finest pieces from the standpoint of technique are specimens 170211h, i, similar in appearance to the best quality modern scrim. The heaviest pieces are two canvas cloths (170465c) seamed together with a coarse running stitch (Plate LXVII*i*). The only other fragment with a seam is 170677b, which was constructed of two breadths drawn together with "sham" hem stitches; five to the inch (Plate LXVII*d*).

One piece, specimen 170211i, is creamy White; most of the others are either Natural Brown cottons (8 L 9, 14 F 7, and 15 C 10) or darkened White cottons. Two were dyed, both veils, possibly, one of which now looks dark Gray in some places, dark Gray Green (15 H 6) in others, and the second Orange (13 K 9). They are both woven of single-ply yarns, crêped, and the texture is gauze-like (170476b and 170677b).

PLAIN WEAVE STRIPED MANTLES

The classification of these garment materials is based upon measurements, textures, and patterns. The group is about equally divided between the all-cotton and the all-wool mantles. There are no complete lengths for the first group, and but two intact breadth measures: 27″ and 36″. The striped wool mantles are in better condition, as Basic Table 20 shows. Three specimens furnishing complete length measurements are 44″, 48″, and 60″ long. An incomplete length of 5′6″ is evidence that some striped mantles were woven at least as long as was plain weave mantle 171305a, which measures 5′8″. Complete widths for the all-wool striped mantles are within the usual range.

Striped materials are often warp-face materials, and although the actual warp counts per inch do not in themselves set the cotton mantle group apart, the appearance of the fabrics is characterized by the preponderance of warp yarns over weft yarns per inch. For comparison the warp-weft counts of the all-cotton and all-wool mantles are placed in two columns:

Cotton			Wool		
Warps per inch	Wefts per inch	Warps per inch in excess of wefts	Warps per inch	Wefts per inch	Warps per inch in excess of wefts
34	26	8	22	22	0
34	32	2	26	24	2
36	20	16	32	26	6
42	16	26	34	14	20
80	22	58			

The contrast in textures of the two sub-groups is indicated to some degree by the counts. The all-wool materials are more loosely woven, and, although sturdy, could not be described as suitable for hard wear. The cotton mantles are durable-looking garments, fairly smooth as to surface, and undoubtedly the less elegant of the two types.

STRIPED COTTON MANTLES

The most interesting feature of the striped cotton mantles as a group is the choice and arrangement of the colors which make up the stripes. The number of colors to be found in the specimens varies from two to four, including White and Natural Brown. The available mantles form so small a group that each mantle fragment is described in terms of its color sequences and proportions. The warps in all five instances were set up in the loom in color units of 2, 4, 6, or 8 yarns. The bands of warps for the wider stripes seem to have been measured for width rather than counted. The wefts are White with the exception of those in one specimen.

The simplest 2-color arrangement is illustrated by Cahuachi specimen 171305b. A three-inch plain White stripe borders each side of the web. The central 30″ portion of the breadth shows a set-up of 8 Natural Brown warps, 8 White, 8 Brown, and repeat (Plate XXXVI*b*.

A 3-color specimen, Majoro 170465b, is more interesting. This fragment illustrates a distinguishing feature of Peruvian color sequences: the permutation of three or more colors, a device which achieves a variety not suggested by the limited range (Plate XXXVI*e*). The specimen also maintains a second sequence in the number of warps set up for each stripe. White, Natural Brown or Tan, and a darker Brown are arranged as follows:

W	BR	W	—	BR	T	BR	—	T	BR	T	—	BR	W	BR	— repeat
8	2	6		8	2	6		8	2	6		8	2	6	— repeat

Note that the second yarn color of a group of three becomes the first and third yarn color of each successive group, but in a greater amount. The subtlety of the arrangement is a result of the combination of both sequences.

Majoro specimen 170465d alternates a White stripe 2¼″ wide with a 3-color band composed of Gray, Golden Brown, and Dark Brown (shown as Black in Plate XXXVI*d*):

BR	GRAY	BR	GOLDEN	BR	GRAY	BR	GOLDEN	BR	GRAY	BR	GOLDEN	BR	GRAY	BR
2	*6*	2	*2*	2	*6*	2	*6*	2	*2*	2	*6*	2	*2*	2

First note that two Dark Brown yarns regularly alternate with the others; then that the Gray and Golden Brown regularly alternate with each other in counts of 6–2–6; 6–2–6, breaking on the last group.

Cahuachi specimen 171183 is one of the rare examples of bisymmetric design arrangement among Peruvian textiles (Plate XXXVI*a*). The four colors are set up as follows:

GREEN-BLUE	WHITE	ORANGE	WHITE	ORANGE	WHITE	TAN (center), reverse order
6	2	2	2	2	2	6

The fifth cotton mantle fragment in this group, Cahuachi specimen 171311, is a 2-color check barred off at intervals of approximately two inches both warp- and weft-wise by a White stripe which forms a secondary design (Plate XXXVI*c*). The warp set-up of a single design unit is as follows:

WHITE	BR	TAN	BR	TAN	BR	TAN	BR	TAN	BR	TAN, repeat
4	2	16	2	16	2	16	2	16	2	16

The colors, including White and Natural Brown cotton, as matched to Maerz and Paul's printed samples varied in the different fragments as shown by the list:

"White".....12 B 6; 12 D 5
Natural Brown....12 E 6; 13 E 7; 14 B 9
Golden Brown.....14 G 8
Dark Brown.....15 C 10; 15 E 11
Gray .....14 A 4
Orange.....11 B 9
Green-Blue.....39 E 1

STRIPED WOOL MANTLES

Quite apart from the yarn composition, the striped wool mantles are differentiated from the striped cotton mantles by their more distinctive colorings, and complicated edge trimmings. In addition, they obviously represent a higher quality of workmanship than do the cotton mantles.

Two of the six specimens in this group are complete and furnish criteria of size, texture, and patterning by which to identify the fragmentary specimens. Since the complete specimens are very similar, it will be possible to describe them together.

	Cahuachi 171262	Cahuachi 171265
Length	60″ (full)	48″ (full)
Width	52″ (full); 26″ + 26″	38″ (full)
Depth of edge trim	0.75″	0.375″
Weave	plain, warp stripes	plain, warp stripes
Warp-weft count	26 x 24 per inch	22 x 22 per inch
Yarn composition	single-ply and 2-ply wool	single-ply and 2-ply wool

The set-up for the warp stripes is similar in these two pieces (Plate XXXVII*e*, *f*), and the yarns matched to the Maerz and Paul samples proved to be identical in color: Specimen 171262 has 6 Black yarns, 2 Rose yarns (5 L 7), 6 Red yarns (5 L 11), 2 Rose yarns repeated across its width; and specimen 171265 has 4 Black, 2 Rose, 4 Red, 2 Rose repeated. This is the familiar 1–2–3–2, 1–2–3–2, etc. repetition of the Peruvian color sequences. The crêpy texture effect in both specimens is due to the fact that the 2-ply yarns are all spun hard twist, and the single-ply yarns are given crêpe twist. The Black yarns are "charred" to a degree that most of the stripes originally Black are now only spaces crossed by the Red weft yarns.

The two breadths of the larger mantle 171262 are either loom-joined, or seamed together by a method shown in Plate LXVII*f*. If the loom-join interpretation be accepted, then one completed breadth may have been held in place close to the second one under construction. Whenever the active weft yarn came across the second set-up of warps, it interlocked with an extra yarn put through the edge of the finished web with a needle. This procedure would draw together the edges of the completed web and the one under construction. If seaming by stitches was the method used, then credit must be given for almost incredible skill in putting the needle below a single edge warp of each breadth only, and through each weft loop. Perhaps such skill was not amazing in Early Nazca days, but it does so strike the modern analyst.

The edge trimmings are of two types on each of the mantles: a woven tape and a square needleknitted cord with rectangular tabs on one side and a fringe on its opposite side. Considering first the woven tapes, those across the two ends of specimen 171262 are woven tapestry fashion on set-ups of four warps, the wefts so closely battened down as to render the warps invisible. Upon completion, the outer edge warp of each tape was removed, leaving weft loops which twisted into a short fringe. The tape across the ends of specimen 171265 was woven tapestry fashion on three warps, all of which were left in place (Plate LXIV*b*).

The square cord with tab and fringe is one of the most complicated edge trimmings to be found among Peruvian textiles. Early Nazca weavers (or embroiderers, since the construction is wholly with the needle) seem to have favored this type of finish for wool mantles, and also for the wool kerchiefs. Wherever it occurs it edges the long sides and extends around the corners for a few inches (Plate XXXIV*b*). It combines three techniques, no one of which is difficult in itself: needleknitting,[15] buttonholing or half-hitching for the tabs, and figure-8 weaving for the plain or fringed tape. The difficulty presented to the analyst lies in the fact that the widest fragment illustrating these three techniques in combination is only three-fourths of an inch wide (specimen 171125), and that each unit stitch is so small as to be seen only through a magnifying glass.

[15] For an analysis of this technique see American Anthropologist, vol. 36, pp. 405–430, 1934.

Plate LXIV shows variations of the cord-tab-fringe (or tape) finish. The first unit, or foundation, is the square cord constructed on an indefinite number of colored wool yarns, one of which, usually Brownish-Black, makes the needleknitting stitches on two of the four sides (Plate LXV*c*). The stitches on the other two sides follow an apparent if not an actual sequence of colors. An example of the latter type is provided by specimen 171265, in which Yellow, Purple, Red, Orange, and White occur in the following sequence, imagining the four sides to be visible at the same time:

1	2	3	4	1	2	3	4
Y	Blk	Y	Blk	R	Blk	R	Blk
Y	Blk	Y	Blk	Y	Blk	Y	Blk
Y	Blk	Y	Blk	Y	Blk	Y	Blk
P	Blk	P	Blk	O	Blk	O	Blk
P	Blk	P	Blk	O	Blk	O	Blk
Y	Blk	Y	Blk	R	Blk	R	Blk
Y	Blk	Y	Blk	R	Blk	R	Blk

This sequence of fourteen courses is repeated with occasional breaks or substitutions of White for Yellow. The change from one to another color is possible because the whole group of colored yarns is carried along as a core around which the needleknitting stitches are made in this order: Red (or any one of the colors), Brownish Black, Red, Brownish Black, followed on the next course below by Yellow, Brownish-Black, Yellow, Brownish Black, and so on.

The second unit of the trimming is the tab series extending out from one Brownish Black vertical row of needleknitting stitches. Different specimens present variations in the number of buttonhole stitches in the single tab, and the direction in which the work proceeded, but these details are immaterial. Plate LXV*d* shows the method of piling up buttonhole stitches to form the tiny rectangular tab, two or three courses high, and Plate LXIV*d* shows the finished effect. The tabs completely conceal one dark side of the square needleknitted cord. Whipping stitches taken through the tops of the tabs fasten the trimming to the mantle or kerchief edges.

The tape or fringe edge, the third unit of the trimming, involves yarns stretched as warps. A weft is woven over and under these warps at the same time that it is made to pass under the needleknitted loops of the opposite dark side of the square cord (Plate LXIV*e*). There may have been a skeleton warp for the narrow tape on specimen 171265. Upon withdrawal of the skeleton warp the tightly twisted weft yarns curled. Or, there may have been several warps including a skeleton, as for specimen 171125 (Plate LXIV*e*). The weaving is in plain tapestry technique, in most cases figure-8 over two warps only. As shown in the illustration, three colors are used for weft. The multiplicity of colors in this last specimen suggests an extremely complicated technique.

Mantle 171310 is constructed of two breadths 22.5″ wide (one complete, one fragmentary) seamed with saddler's stitches (Plate LXVII*c*). It is a warp-face, striped material in three colors, natural White wool (14 L 10), Dark Brown (8 H 10), and Golden Brown (15 A 10), in the familiar sequence 1–2–3–2, 1–2–3–2, etc. Apparently the warps were deliberately set up in uneven widths since the stripes vary through $^{3}/_{16}$″ $^{5}/_{16}$″ $^{8}/_{16}$″ $^{10}/_{16}$″.

The most interesting of the striped wools, and the only one exhibiting a range of colors, is a fragment 44″ long (complete length) by 9″ wide (specimen 170665, Plate XXXVII*i*). It has a texture similar to veiling although the yarns are 2-ply instead of the usual single-ply found in such fabrics. The stripes are formed of groups of two or six yarns. The actual measurements of the wider ones vary because some of the warp groups have been set up more closely than others. Two Reds are used, the brighter one, Ember, for the two warps which alternate with all the other colors. The fragment is too narrow to determine the sequence

of colors, but two repetitions of them are as follows: Ember Red (5 K 10), Purple (47 E 5), Ember, Purple, Ember, Tan (11 C 3), Ember, Purple, Ember, Green-Blue (39 H 3), Ember, Indian Red (6 L 12). Repeat, substituting Orange (13 K 8) for Tan. The weft is Purple throughout. The colors, especially the Green-Blue, are very similar to Oriental rug colors.

Barred Wool Fragments, Unidentifiable.—Two small pieces of fine, open-weave materials, of a texture suggesting head veils, are represented by specimens 170211c[1-2] (Plate XXXVIIc). They are identical in all but color: plain weave, count 18 warps by 18 wefts per inch, yarns single-ply wools. Specimen 170211c[1] has a set-up of four Barberry Red yarns (5 L 7) alternating with four lighter yarns composed of stock-dyed Rose fibers (3 K 8) and natural creamy wool. The wefts are the same in color and arrangement. Specimen 170211c[2] shows the same set-up of four and four, one set of yarns similar to Empire Green (23 E 8) and a second set which has completely dropped out of the fabric.

STRIPED MANTLE COLORS

Whether cotton or wool yarns were to be used in weaving, the choice seems to have fallen largely upon those within the dull Orange or Brown category. The range, matched with Maerz and Paul's printed samples, is extensive, although it may not have been so before the cloths were burned or faded by sun, and dulled by wear. The adjectives light, medium, dark in the following tabulation apply only to the Browns in the specimens under consideration. The darkest Brown in these striped pieces is, like Burnt Umber, many degrees lighter than Black.

Cotton mantles Specimen nos.	Brown			"White"	Reddish-Gray	Orange	Greenish-Blue
	Light	Medium	Dark				
170465b	.....	13 E 7	15 C 10	12 B 6	.....	.....	.....
170465d	.....	13 E 7	14 G 8	12 B 6	13 A 4	.....	.....
171183	12 D 5	14 B 9	.....	.....	.....	11 B 9	39 E 1
171305b	12 E 6	.....	.....	12 B 6	.....	.....	.....
171311	12 E 6	13 E 7	15 E 11	.....	.....	.....	.....

The wool mantles in this small group are more colorful. Brown wool yarns were used in some garments, for instance, the tunics, but only one of the four mantles is woven with brown yarns. Disregarding the colors in the trimming bands, which will be noted when speaking of the needleknitting specimens, the dyed yarns of the basic webs strongly contrast with those in the cotton webs, probably Natural Brown in some cases.

Wool mantles Specimen nos.	Red	Orange (Brown)	Yellow	Green	Blue	Purple	Black
170665	5 K 10	13 K 8	11 C 3	39 H 3	.....	47 E 5	.....
	5 L 11	.....	.....	.....	.....	.....	.....
171262	5 L 7	.....	.....	.....	.....	.....	Present
	5 L 11	.....	.....	.....	.....	.....	.....
171265	5 L 7	.....	.....	.....	.....	.....	Present
	5 L 11	.....	.....	.....	.....	.....	.....
171310	.....	8 H 10	.....	.....	.....	.....	.....
	.....	14 L 10	.....	.....	.....	.....	.....
	.....	15 A 10	.....	.....	.....	.....	.....

BROCADED AND EMBROIDERED MANTLES

The most obvious feature of the small group of mantles coming under this classification is that no two of them are similar in design or in patterning, only in coloring. Among them is Cahuachi mantle 171220, a specimen of such importance as to warrant detailed treatment of its several features.[15a]

[15a] A detailed discussion of this specimen appears also under the title The Wide-Loom Fabrics of Nazca, Essays in Anthropology in honor of Alfred Louis Kroeber, Berkeley, 1936.

Mantle 171220 is represented by three large and two small fragments:

Aj10-171218a.....38″ x 48½″
Aj10-171219a[1-3].....30½″ x 40″, 12″ x 18″, 3½″ x 7″
Aj10-171220.....26″ x 33″

For convenient reference within this section of the paper only, the three fragments of 171219a have been given superior numbers, but in speaking of the garment as a whole it is referred to by the last of its numbers, 171220 (Plate XXXIII).

The five fragments, four of which are corners showing loom-string ends and side selvages, fit together to form a rectangle at least 6′8″ long by 5′5″ wide (Plate XLIX). If more evidence than the reconstructed shape were needed to prove that the remnants were originally one web, the similar yarn counts per inch, the identical design motives, and the colors of the decorative yarns could be cited. There is no doubt of the full width measure since there is no suspicion of lengthwise join. The two fragments 171218a and 171220 fit together with no inch of the fabric missing. Straight tears warpwise and weftwise through one of the rectangular design motives leave portions of it on both fragments. In addition, there are the same dark and yellowish stains on both fragments.

Any opinion concerning the loom type upon which a 5′5″ breadth was woven must be speculative. No one has made a detailed study of the ancient Peruvian artifacts which might be interpreted as loom parts. The direct and indirect evidence to date indicates that the looms were of the type attached to the weaver's belt,[16] but a belt loom for a single weaver seems a most dubious explanation for a single breadth 5′5″ wide, and a totally inadequate one for two single-breadth Paracas fabrics 7′7″ and 8′3″ wide in the Museo Nacional collections in Lima.[17]

The main reasons why the ordinary belt loom type manipulated by a single weaver seem improbable explanations for wide fabrics like the three mentioned concern the limitations imposed by the loom itself. A weaver sitting at the center of a loom bar attached to her waist can weave a fabric very little wider than the length of her reach to right and left. She can, it is true, sway to each side, but the distance is limited by her position in the belt contrivance. Before she can enter the weft yarn at either side, the alternate warps of the set-up must be raised by some form of heddle. The kind found in the prehistoric graves is a type known in different parts of the world. It consists of a stick as long as the warp set-up is wide—this length is for fabrics of average width—from which cord loops drop to encircle each of the odd or even warps.

A heddle stick 5′5″ long with loops encircling the alternate warps would be no easy object to raise, especially since it should be inflexible, therefore of some weight. To envisage raising the whole group of encircled warps against their resistance, at the same time putting through the space so created a sword or batten to keep them separated, these two actions with the body tense, taxes the imagination of a modern craftsman. A sword at least 5′5″ long, and of sufficient weight to be effective, could not but be unwieldy. I doubt if one person could manage both heddle and sword if they were as long as the Cahuachi set-up was wide. Perhaps, like the heddles on the looms for weaving pictorial tapestries, the Cahuachi heddles were in sections. And, perhaps, the swords were short and were pushed through the shed as the sections of the warp were raised by the heddles.

To put the weft across a wide web is slow work but not difficult. Wound sticks, or spindles, and balls of weft yarns have been found. In either form the weft yarn is not a

[16] Textile Periods, p. 29, footnote 14.

[17] E. Yacovleff and J. C. Muelle, Un fardo funerario de Paracas, Revista del Museo Nacional, vol. III, nos. 1–2, pp. 77, 79–80, plate 1e, f, 1934.

problem. But battening each line of weft down to the already woven cloth depends again upon the length and type of sword.

Maintaining even side selvages, a feature of all Peruvian weaving of whatever period, would also give trouble to the weaver working at a 5′5″ breadth. Most modern craftsmen pull through the weft with one hand, at the same time holding with the other the opposite edge to prevent it from drawing in. To stretch across a set-up of 5′5″ demands the full reach of a weaver of that height, and to make cloth by repeating the motion 26 times an inch for 6′8″ seems pretty improbable. For the 7′7″ and 8′3″ materials reported from Paracas mummy bundles, a single weaver at a belt loom is an impossible assumption.

Since any opinion to date regarding the loom type is speculative, one might imagine a loom at which it was customary for several weavers to work side by side as they did when weaving the Kashmere shawls, or as they do today in weaving the Oriental rugs. Then, too, there is always the possibility that the Early weavers had wide looms similar to the horizontal or the vertical frames in use today among certain African tribes. Possibly, like the ancient Egyptians, the Peruvians used both types and set two weavers at each.[18] The Lima investigators quoted above suggest "some form of large loom whose models have not come down to us for the reason that it was impossible to place the looms in the graves."

An analysis of the length measurement of the Cahuachi mantle and the reason behind the assumption that 6′8″ is the minimum also involves uncertainty. Specimens 171218a and 171219a[1] are opposite corner pieces on the same side, and although the embroidered motives bordering the ends are different, the side borders are identical (Plate LII*c*). The same sequence of four colors in the two halves of the design unit—(1) Blue, Green, Yellow-Orange; (2) Blue, Green, Red—is maintained through two complete repetitions, or four half-units, from the corner of specimen 171219a[1]. The cloth has disintegrated under the last two motives, leaving long loops of the Green yarn still interlocked at the change from Green to Red (Plate LXVIII*e*), and the few remaining Red loops are only a fraction of their original length. On the other side of the break the sequence picks up at Blue and continues: Blue, Green, Red—the second half-unit of the repetition—and then unbrokenly to the corner of specimen 171218a where the sequence ends on Blue. In numerals, to represent Blue, Green, Yellow-Orange, Red, the sequence is as follows: 123–124; 123–124; cloth missing—124; 123–124; 123–1.

A determination of the original length of this mantle depends upon two factors in the analysis: the approximate length which seems in reasonable proportion to a mantle width of 5′5″, and the clues furnished by the measurements of the border motives. These last are perhaps more tangible and may be considered first.

Peruvian color sequences are in most cases consistently maintained. There is no reason to suppose that the destroyed portion of the original mantle between what is now represented by specimens 171218a and 171219a[1] was any exception to that rule. There is no reason, either, to suppose that the lengths of the three embroidered elements in each half unit, totaling approximately 8½″, should have appreciably varied in the missing portion. The mantle's total length would, then, have been equal to the fragmentary border lengths, 33½″ (which includes the length of the fragmentary Red element, 3″) and 38″ plus the first half-unit of the sequence, the missing Blue, Green, Yellow-Orange motives, approximately 8½″, total 80″. This is the minimum length. Of course, there is no arbitrary limit to the suggested length, but if the original mantle was longer than 6′8″ then the amount must almost certainly have been governed by the combined lengths of the two half-units in the border, approximately 17″–18″. In other words, adding 11½″ to the lengths of the

[18] H. Ling Roth, Ancient Egyptian and Greek Looms, figs. 1–11, 13, 14, 16, Halifax, 1913.

wo intact borders provides for completion of the fragmentary Red motive and for the nissing half-unit, Blue, Green, Yellow-Orange. Any alternative interpretation requires hat whole units, each measuring 17″–18″, be considered in addition to the 11½″ which ills the gap in an otherwise perfect color sequence.

From the standpoint of proportions, there is less material upon which to base estimates concerning the length of the original mantle. The Early Nazca collection contains ten nantles furnishing complete dimensions. Their lengths, ranging from 40″ through 80″ (?), and their widths, from 38″ through 65″, are tabulated in the section on Mantle Dimensions (Table 22).

If we assume the original dimensions of mantle 171220 to have been 80″ (33½″+ 38″+ missing half-unit, 8½″) by 65″, the proportion of width to length is 0.812, placing the mantle third in the group of ten. If, however, we assume the original dimensions to have been 97″ (33½″+38″+missing half-unit, 8½″,+ a complete unit, 17″+) by 65″, the proportion of width to length is 0.67, first on the list. There is, in reality, no more foundation for one than the other assumption, except that the available mantles show lesser rather than greater differences between their two dimensions. It may be of interest at this point to note that the Cahuachi mantle seems to have conformed to a local style in the matter of proportions. The celebrated embroidered mantles from the Paracas Necropolis representing a period approximately coeval in time[19] are not only unlike the Early Nazca mantles in the Field Museum Collection in general appearance and decoration, but also in dimensions. A summary of three basic tables is here presented:[20]

Range in lengths of 67 Paracas Necropolis mantles: 83″–144″.

Range in widths of 53 Paracas Necropolis mantles: 31″–64″.

Range in proportions of widths to lengths of 53 Paracas mantles: 0.242–0.605.

Even assuming a length measurement for mantle 171220 which would place its width-to-length proportion first in its group does not alter the fact that the Paracas mantles radically differ in shape from the available Early Nazca examples.

Technologically, Cahuachi mantle 171220 presents few unusual details. The basic weave is plain, and the texture has something in common with modern scrim except that the more tightly twisted yarns of the mantle account for a slightly crêped surface. The warp-weft counts per inch vary sufficiently to indicate that hand weavers are pretty much alike in all times. The warps were set up 26, 28, and 30 per inch. Wefts count 24 and 26 per inch. The yarn is 2-ply white cotton, spun medium-to-hard twist.

This Cahuachi mantle, like so many other textiles in Peruvian collections, brings up the ever-recurring question of whether a certain technique shall be classified as brocade or embroidery. The answer is made no easier by references to older writings in which are described brocades worked with the needle, as well as embroideries accomplished in the loom. Either description confuses by reason of the fact that brocading has been more or less firmly established as a weaving process, and embroidery has for ages been restricted to a method of patterning a fabric already woven. With the best intentions two English writers seek to clarify the situation in the following paragraph:

"Many of the Peruvian patterns are woven by the method of brocading. This closely resembles a simple form of embroidery, and it is sometimes difficult to determine the one from the other, brocading being really a form of embroidery applied to weaving. In brocade weaving, the threads forming the pattern are inserted as an addition to the weft threads

[19] Textile Periods, p. 25, Table I, Chronological Concordance of Periods.
[20] Unpublished MS.

and in a line with them during the course of weaving, and this is done with a needle or some form of bobbin, the warp threads being so regulated in their use as to secure the brocading threads somewhat slackly at certain defined points in the pattern without themselves being evident; there may be a special warp for this purpose. The brocading is therefore part of the process of weaving, but it has not the structural element of tapestry. The same process carried out by the needle on the woven fabric is true embroidery."[21]

The description is accurate and also adequate, if two details be added: first, that the threads forming the weft brocade pattern regularly alternate wherever used with the weft threads of the basic material; and, second, that the "certain defined points" at which the warp threads appear often in themselves make a secondary pattern on the brocading threads as well as "secure" them.[22]

In the analysis of these Cahuachi mantle fragments for the preliminary report[23] the borders and rectangular motives were termed brocades. It is true that the basic fabric is a fairly coarse open-mesh material, and to count its threads in order to plan the geometric elements in the patterns implies no such skill as do other Peruvian techniques of this Early period, the needleknitted bird and flower fringes, for example. But, if one inclined to interpret mantle 171220 as a brocade, one might argue that the straight-line work of the pattern rectangles could be put in more easily with a shuttle weaving over and under stretched bare warps than with an embroidery needle subsequent to the weaving. This reasoning assumes a knowledge of what the Cahuachi weaver considered easy or convenient. And, too, if one of the heavier pattern yarns was never found to cross a basic weft which parallels it on either side, the brocade interpretation could stand against any argument for embroidery. Perfectly done, embroidery in the brocade manner cannot be distinguished from brocade. The smaller motives which form the lower borders, the finial motives out from the corners of the rectangles, and the side borders with their yarns interlocking at color changes do not bear the stamp of the brocade technique, although it is conceivable that they might have been made by that method.

The patterning of Cahuachi mantle 171220 is not the least interesting of its features. There are seemingly illogical differences in the four borders, inconsistencies in the arrangement of design forms, and unanswerable questions arising as to the original size of several fragmentary motives. Added to these aspects—and largely because of them—is the regrettable lack of actual evidence for the patterning of the missing center third of the mantle.

Plate XLIX shows schematically the proportions of the reconstructed garment, the placing of its various design areas indicated by capital letters. Each area is a composite of elements more or less similar in appearance, but not identical. The characteristic simple and elaborated elements forming the motives are the following:

(1) Lozenge shapes: plain 4-sided diamonds of various sizes, with and without embroidered center dots (Plate L*b*); angular figure-8 forms composed of two lozenge shapes, and elaborated lozenge shapes with wide framing lines and hexagonal center dots (Plate L*a*).

(2) Triangles: isosceles and equilateral, both with and without embroidered center dots (Plate L*b*).

(3) Chevrons: small simple forms as well as elaborated ones (Plate L*b*).

(4) Bird forms: in flight, profile view; in flight, top view (Plates LI, LII); four heads (?) radiating from horizontal axis, and two heads (?) in profile, bodies forming sides

[21] Mary Symonds and Louisa Preece, Needlework Through the Ages, p. 108. London, 1928.
[22] Textile Periods, plate 23b, shows warp shedding for secondary design.
[23] *Idem*, footnote 16.

of chevron (Plate L*a*); bird (?) form with short tail feathers and very long tail feather (?) turned back under body (Plates LI, LII).

(5) Serpent forms: the bodies a composite of lozenges and triangles (Plate L*b*); highly conventionalized form, possibly serpent (Plate LII*c*, *d*).

These design elements are variously combined in forming ten different border and basic web motives, each of which requires a separate description. The letters correspond to those on Plate XLIX.

(A) A border on one long edge (specimens 171219a[2] and 171220) composed of 2½″ to 3″ units with half-inch spaces between them. Each space is broken by the bill of a bird in profile; alternate birds face in the same direction, a method of countering which seems never to have been practiced to any extent during the known Peruvian periods (Plate LII*d*). Colors in repeated sequence, as given above: Blue, Green, Yellow-Orange; Blue, Green, Red. There is little doubt that the rectangular unit as well as the bird form is in embroidery technique. The mantle edge is thickened where several strands of wool yarns have been crowded in between the basic warp threads. The motives are all more or less alike, but what they were meant to represent is not clear. Perhaps they are double-headed serpents, a form to be seen in two of the large rectangles in the center of the web (Plate L*b*). Wherever the color change takes place, the individual embroidery yarns of the two involved sets interlock underneath the space occupied by the bird form as shown in detail drawing Plate LXVIII*e*, *f*.

(B) A border on opposite long edge formed by specimens 171218a and 171219a[1]. In color sequence and other respects this border is identical to border A except that the bird figures which fill the spaces between the rectangles are represented full top view instead of in profile (Plate LII*c*).

(C) An end border on fragments 171219a[2] and a[3]. Plates LI*b*, LII*e* show the form and arrangement of a design element which may or may not be a bird. Note the apparent lack of system in either the arrangement of the motives in relation to each other, or in their relation to the border as a whole as evidenced by the sizes, spacing, and countering of the design parts. The small birds near the corner are equally illogical. Did the embroiderer begin with these and finish with the more ambitious motives? Or did she weary of doing the larger motives, and end off the row with the small birds as fillers?

(D) An end border on fragment 171219a[1] (Plate LI*a*). Profile bird forms in zigzag arrangement, the bill of the upper bird forming the leg of the lower bird, and vice versa. At the corner end of the border, and for no obvious reason based upon spacing, there is a single element identical to the motives in end border C.

(E) An end border on fragment 171218a, a second arrangement of the bird motives of border D in a double zigzag which drifts off without reason into a pair of the same motives used alone in border C (Plate LI*c*).

(F) A free standing motive, animal (?) or fish (?) on end of fragment 171219a[1] (Plate LII*a*). In solid color, Blue.

(G) Rectangular motives in main web, complete in specimen 171218a and partially complete in 171219a[1]. The individual elements of this design are lozenges, triangles, and chevrons, so arranged as to form double-headed serpent forms. The stitchery (?) in all the rectangular motives is parallel to the weft yarns, giving the effect of woven brocade (Plate L*b*). The colors, Red, Green, Yellow-Orange repeated 1–2–3–2, 1–2–3–2, 1–2–3, appear as lengthwise stripes on the Blue ground of the motive.

(H) Rectangular motives, portions of which appear in specimens 171218a, 171219a[1], and 171220. The rectangles are approximately the same size as those described under

G, but the basic elements are differently combined. In addition, each corner is extended by a zigzag line terminating in a bird form (Plate L*a*). The same stripes of Red, Green, and Yellow-Orange yarns run lengthwise through these motives as in the G type. Birds Red and Green on opposite diagonal corners; in Blue and Yellow-Orange on remaining two.

(I) A finial in the form of a bird extending out from the corner of a missing design motive. The original shape of the motive cannot be determined. The distance between the finial and the basic web of fragment 171220 is too short to allow a rectangle as large as those lettered G and H. There is no clue to the main design motive except that the bird is embroidered in Red and Green as in H type.

(J) A motive of unknown size and shape on fragment 171220 (Plate LII*b*). Here there is space for a form similar to the rectangles lettered G and H, but the bit of intact embroidery is unlike either, although apparently composed of some of the common elements.

The one constant factor in the patterning is the limited range of colors used. If mantle 171220 showed fewer signs of fading, the number of hues might be analyzed with greater certainty. The yarns matched to the printed samples in Maerz and Paul's Dictionary of Color yielded the following results: Bronze Green (16 L 12), two Yellow-Orange hues similar to Raw Sienna (12 J 9 and 13 L 9), two dark Blues (39 H 3 and 40 H 10), a Brown similar to Chestnut (7 H 9), the familiar Brickdust (5 L 11), and perhaps several other Reds which at this time look like faded yarns. Upon analysis it has been found that the Peruvians had dyes to produce a wide range of Reds, but in this particular case it seems wise to stop with the one Red which is certainly present. Many of the yarns in mantle 171220 show strands differing in color, and it is doubtful whether matching an assortment of swatches would mean very much. The impression given by the whole mantle is of embroidered motives in Red, Blue, Green, and Yellow-Orange, with occasional small areas in dark Purplish Brown. The repetition of a series of these colors is nowhere insistent except in the two side borders, A and B, but it does make itself felt as a deliberate repetition.

Cahuachi mantle 171220 presents a number of features common to the Early period fabrics as we know them: the cotton basic web with a pattern in wool; the bold designs, no doubt conventionalized and affected by local tastes, but not rendered meaningless through slovenly handling; the strong rich colors of the dyed yarns, the whole general effect of a garment woven and embroidered by craftsmen who were aware of involved techniques, but who had them under perfect control. This is evident in the evenly spun yarns and the uniform surface texture of the material.

Majoro mantle 170465a is a fragment of incomplete length, but full 37″ width. Needle-holes on its side selvage indicate that a second breadth was originally seamed to it. The weave is plain, warp face, and the yarn count varies in the three selected spots 52 x 32, 58 x 36, and 64 x 30. An arbitrary choice of 58 x 32 was made for Table 20.

The embroidery is a combination of double running and stem stitch. One side edge, the outer in the original garment, has a band of animal figures (llamas?) with short legs, approximate overall measure of 1″ long by ½″ high (Plate LVII*e*). Extending from the corner across the loomstring end for 6″ are two rows of birds (?). The yarn of the basic material is 2-ply white cotton. The embroidery is done in 2-ply wools: Purple, of two hues similar to Mauve (46 : G4 and 46 : D6, both colors characteristic of the textiles of this collection), Rose (4 E 10), and Yellow-Green (24 L 1). The colors appear in no regular order except that the two Purples occur together twice, making dark blocks in the border.

The question whether the specimen is embroidered or brocaded is not raised by this mantle since the extra yarn is put in parallel to the warps on both side and end. Wherever

the colors change the embroidery yarns loop about each other as in mantle 171220 (Plate LXVIII*e*). The designs are built up by floats over 2, 4, or 6 wefts, and the stitches are so arranged as to give a flat twill effect to the face of the embroidered surface.

Cahuachi mantle 171216 is chiefly interesting because of the unusual number of colors brought into its design motives. It is a complete piece, 57″ x 47½″, in plain weave; warp-weft counts 28 x 34; 2-ply white cotton for the basic web, single-ply and 2-ply dyed wools for the embroidery (Plate LVIII).

The surface and reverse sides of the mantle are identical. The stitch is the same double running stitch mentioned above, but this time used alone (Plate LX*h*). Double running is essentially like weaving in that the needle passes alternately over and under a definite number of warps or wefts—in this mantle three of either—when progressing in a given direction. On the return, progressing in the opposite direction, the same number of basic web yarns are passed over and under, but in reverse order, so that if warps 1, 2, 3 are passed over the first time, on the return they are passed under by the embroidery yarn. The difference in the direction of the stitch, whether made parallel to the warps or to the wefts, varies the surface effect. The work appears to be solid embroidery, although the lines of wool stitchery are separated by a single cotton yarn of the basic weave. Curves and diagonal lines are built up as in weaving by stepping the embroidery stitches to right or left.

Each corner of mantle 171216 contains a human figure holding a staff or weapon in either hand. The figures are about 4½″ tall, the length of each parallels the weft yarns, and each is divided into approximately the same larger areas of color: face, body, head-dress, tunic, breech clout, staves. The faces are represented with painted markings.

At least fifteen colors are involved. Some of the figures and even the details were originally outlined with dark yarn, probably as near Black as was obtainable. All these outlines are either completely disintegrated or remain in the fabric as bits of charred yarn. The mouth and eye details also were probably in blackish yarns since they have fallen out of the material. The greatest number of colors are used in the head-dresses and the staves. One figure has a head-dress embroidered in checks of eight colors; another carries staves divided into ten small color zones. Most of the yarns are still bright, and fifteen were matched to the printed samples in Maerz and Paul's Dictionary of Color with the following results:

Reds: 3 J 9, similar to Coral; 4 G 10, similar to Etruscan; 5 L 11, Brickdust.

Yellows: 10 J 5, Corn; 10 K 6, Chinese; 13 L 9, similar to Hazel.

Greens: 22 J 1, similar to Reseda; 23 E 5, similar to Cedar; 24 A 6, dark Yellow-Green; 24 E 11, similar to Hunter Green.

Blue-Greens: 38 J 3, 40 H 9, and 40 J 6, similar to Navy.

Purples: 44 B 2, similar to Heliotrope.

Purple-Reds: 56 C 5, similar to Burgundy.

Cahuachi mantle 171222 is represented by two large fragments 20″ x 41½″ (full width) and 28″ x 26″ (Plate LIX*a*). Thanks to the maintained color sequence of the embroidered motives, it is possible to fit together the two pieces and to determine the complete size, 50″ x 41½″. The mantle is plain weave, with warp-weft count 28 x 24 per inch, of 2-ply brown (?) cotton, crêpe twist. The allover pattern of open flowers, 5″ x 3″, is done with fine single-ply wool yarns. The technique employed gives the motives the appearance of having been set into the cloth. The stitch is the well-known "tent stitch," spaced. According to the usual method of making a line of tent stitching the embroidery thread passes over each intersection of warp and weft, missing none. In the Peruvian variety as exemplified by mantle

171222, the embroidery thread passes over alternate intersections of the warps and wefts: over one warp-weft crossing, under one, over one, etc. (Plate LIX*b*). When, in the next line to be worked, the warp-weft crossings missed are passed over by the embroidery thread, the slanting stitches form diagonals within the motive illustrating the secondary design type of patterning of which the ancient Peruvians were so fond.

Plate LIX*a* shows the shape of the design motive and the sequences of colors in flower shapes and center dots. The yarns matched to the printed color samples[24] are the following:

Flower		Center Spot	
1.	Red, 5 L 9	6.	Yellow, 12 L 9
2.	Purple, 46 D 2	7.	Light Blue, 39 H 3
3.	Light Green, 14 K 1	8.	Red, 5 L 9
4.	Light Red, 4 G 10	9.	Blue, 40 H 5
5.	Green, 31 C 7		

Purple	Green
Yellow	Light Red
Red	Blue
Light Blue	Yellow
Yellow	

The Purple, 46 D 2, is slightly brighter than the hue known as Mauve Dust, and forms one of the small group of Bluish-Reds previously mentioned as noticeable in any amount because comparatively rare. In mantle 171222 the areas developed in Mauve are unusually large.

An embroidered edge trimming, Cahuachi 171180d, belongs in this group on the basis of its technical features. Its appearance is similar to the needleknitted band with tabs and fringe which is applied to Cahuachi mantle 171309. The embroidered fragment is about 1½″ wide plus a 2″ fringe (Plate LVIIc). The foundation fabric is woven of 2-ply wool yarns, warp-weft count approximately 30 x 30 per inch. This foundation is almost covered with stem stitch embroidery of fine quality. The motive is the Nazca open flower worked in five or more colors, most of them faded or discolored.

One side of the band is edged with close-set rectangular tabs about ¾″ deep. These are built by working rows of blanket stitches (coil without foundation) back and forth across the width (Plate LXV*a*). The stitches are so small that the fabric has the appearance of having been woven. Tabs made in this fashion are frequently found on fabrics from Early Nazca and Paracas sites. They are described in the section on Mantles with Needleknitted Edges as foundation shapes for needleknitting embroidery.

The fringe on the opposite side of the embroidered band was added by weaving between the outer warp of the band and a removable skeleton warp about 2″ distant. This type of fringe is characteristic of the period.

MANTLES WITH NEEDLEKNITTED EDGES

Needleknitting is a term coined to describe the appearance of an embroidery stitch.[25] By means of this technique the Early period embroiderers of Nazca and Paracas constructed edge trimmings from simple bindings to complex three-dimensional passementeries. The best-known example of the latter type is the celebrated Larco-Herrera textile from the Necropolis at Paracas.[26]

An analysis of the five mantle specimens upon which needleknitting is found reveals its range of possibilities. Two of the mantles are colored: 171112 Bluish-Black and 171309 Dark Green (16 E 3). The dimensions of the only two complete garments (171223a, 171224) show them to have been almost square (Table 20). The pair of 25″ widths for each are seamed together with tiny stitches taken through each turn of the wefts on the side selvages,

[24] Dictionary of Color.
[25] Textile Periods, p. 32, footnote 25.
[26] J. Levillier, Paracas, A Contribution to the Study of Pre-Incaic Textiles in Ancient Peru. Paris, 1928.

a process which may or may not have been done at the time the second breadth was in the loom.[27] The Bluish-Black mantle, 171112, which looks like a veil or turban, is included in this group for the reason that there are too few similar examples to justify subdivisions.

All five mantle specimens are plain weave cottons, generally of finer quality than that of any of the other groups, as has already been noted in the section on the Correlation between Mantle Types and Yarn Counts (Table 24).

With the exception of the embroidered edges the mantles within this classification present no distinctive features. Each has a needleknitted edge of wool yarns in a wide range of colors. For the present, it will suffice to say that typical needleknitting was developed in from four to a dozen or more colors. The variety was made possible by the freedom from technical limitations such as were imposed by the loom, and by the fact that short bits of yarn could be employed advantageously. Any generalizations regarding Early Nazca conventions or tastes as shown by color choices must be based upon comparisons and occurrence frequencies. These can best be presented at the end of this section in a summary.

The motives developed in needleknitting technique by the Early Nazca embroiderers, to judge by the available material, were relatively few: birds of the parrot and humming bird types, full-blown flowers, plant and seed (?) forms, faces, and the stepped fret. The bird and flower motives seem to have been suitable for representation, either flat like plain embroidery, or in three dimensions.

Following is a brief résumé of the needleknitted details on mantles in the collection. Three of the five have fringes representing birds on a "branch." The fringe sewed to Cahuachi veil or mantle 171112 may be taken as a characteristic specimen (Plate LXI*f*). In this fragment, 1¼″ wide, plant forms originally alternated with birds' heads. At intervals within the length of the branch there are colored motives representing bodies and three-toed feet. A dozen different colors may be identified, not counting those which are interpreted as faded hues.

The fringes on specimens 171223a and 171237 are similar to the above except that the ¾″ width reduces the size of every detail (Plate LXII*a*), yet the number of colored yarns employed is 12 and 14. Originally there were flower or plant forms between the birds of the latter specimen as indicated by the remnants below the "branch."

Mantle 171224 illustrates one of the many discovered variations of the needleknitting technique. The fragment is 50″ long, the complete length. A Red and Purplish Black striped trimming band, approximately 2″ wide, remains sewn to one of the side edges (Plate LXI*a–c*). The set-up allowed for a center space as follows: warps for ¾″, ½″ space, warps for ¾″. The wefts crossed the space, thus providing a foundation over which to work the needleknitting. This was done on both sides of the bare wefts, making the band reversible except for the fact that birds' heads rise up from it on the surface side. The realistic effect is heightened by the open bills in Yellow stitchery and the lines on the needleknitted band representing tail feathers.

Cahuachi mantle 171309 is a folded bundle of material too charred to open out to measure. The fringed edge trimming illustrates one of the familiar uses of the needleknitting technique. The stitchery veneers a woven foundation tape 8 warps wide. On one side of this veneered band are small tabs in needleknitting made over a foundation of buttonhole stitches, on the opposite side a fringe (Plate LXI*d*). The loops forming the 2″ fringe were made by weaving yarn from the needleknitting stitches on the lower edge of the tape over and under three warps, two of them close set, the third one the required distance from the

[27] Textile Periods, p. 30, footnote 15.

other two. This skeleton warp was subsequently removed, thereby allowing the weft loops to twist tightly. Many Peruvian specimens are edged with fringes woven in this manner. Most of them are separately made and joined to the garment.

UNIDENTIFIABLE FRAGMENTS

Besides those already described, the collection contains a number of fragmentary specimens of needleknitting. Some are similar to the bird and flower fringes, and some are included in this section on mantles only because they have more points in common with the mantle edge trimmings than with those on any other of the garments in the collection. The group, more or less unidentifiable as to original use, falls into four classifications:

(1) Bird and flower fringes, presumably the edge trimmings of mantle, veil, or turban types, 1½″–3″ wide.

The fragments within this first category are very similar. Trancas fragment *9058 (2¾″ wide) consists of a needleknitted tubular "branch" along which humming birds alternate with open flowers (Plate LXII*b*). The latter are realistic. They have centers, petals, and stems in solid colors and stripes, but no two flowers are alike. The birds' forms are similarly divisioned into color areas of eyes, throats, breasts, wing and tail feathers. There is apparently no planned arrangement of the colors in any of these intricate passementeries. The hues, several of each family, range from light to dark, and through various degrees of grayness.

The above description will do in a general way for Cahuachi specimens 170211a, 171113, and 171180a. All are fragments ranging in length from 3″ to 6″. As the summary will show, the number of colors varies, but the bits of each are so small as to make all flower-bird fringes look alike except for size.

(2) A stalk with blossoms and leaves (specimen 171114) probably was part of a fringe trimming (Plate LXII*e*). It is more elaborate in its detail than the bird and flower motives, but shares the same general characteristics: realistic rendering of design units within the limits of a technique which cannot avoid being bulky, and the division of the units into small color areas.

(3) Flat, veneered tapes with fringed and tabbed edges like those of mantle 171309 are represented by five specimens. Cahuachi 171180b[1] is a fragment about 1½″ wide (Plate LXII*g*). It consists of a woven tape, and tab foundations covered on all sides with needleknitting. The foundation fabrics have disintegrated but the assumption that they were part of the piece in its original condition is based upon their presence in similar and better-preserved specimens. The design motive in the band might be one of the numerous bird-form abstractions.

The second specimen of a veneered tape, 171117, is an unusual example (Plate LXI*g*). Geometric motives seem rarely to have been developed in needleknitting. This fragment has pairs of interlocking stepped frets approximately 1½″ long, each in a different color. The piece is too small to indicate whether or not a repetition of the colors was carried out. The ¾″ fringe is made as described for mantle 171309 above, by weaving a yarn from the lower edge over and under three warps set close to it, and a fourth skeleton warp the desired depth of the fringe distant from the others. The skeleton warp is withdrawn upon completion of the weaving.

The remaining three specimens in this category, fragments 170211b, 171116a, and 171321a are all flat, veneered tapes with tab edges (total width approximately 1½″) (Plate LXII*f*, *h*). The motive in each is the favorite flower-bird combination. The first specimen still shows two intact humming bird forms, tail feathers spread, bills in an open six-petal flower. The colors of the yarns are dimmed due to the bad condition of the specimen. The

second piece is in even poorer condition, but remnants of flowers and feathers indicate the familiar arrangement. A dark outline on the tabs of specimen 171321a may be a bird form.

(4) Needleknitted ornaments in the form of small squarish human heads (approximately 1½″ by 1½″) may originally have been part of a decorative edge (Plate LXI*h, i, j*). There are seven in the group, three badly charred: Cahuachi specimens 171115, 171180b[2], 171321b[1-5]. The faces of the better-preserved specimens are Red, with features and paint marks in Yellow, Green, and Blue yarns outlined with Black. The rectangular noses are in bold relief, and remnants of "hair" are indicated by long figure-8 stitches across the foreheads of two specimens. Each head is embroidered in fine needleknitting stitches over a cotton foundation. The surface and reverse sides of each are duplicates except for some deliberate interchange of colors.

COLORS IN NEEDLEKNITTING SPECIMENS

After amazement at the intricacy of detail in a needleknitted specimen, one's next reaction is to the minute bits of color which appear and disappear in the motives. Then one begins to count. The task does not yield a satisfying scientific result because some of the colors have faded to hues which have counterparts in unfaded yarns: Reds became Golden Browns; Green lost its Blue and became Yellow; and Black most often is Red, Purple, Green, or Brown when matched with samples. Embroidery in Early Nazca times, and this includes needleknitting, makes obvious the fact that the kaleidoscopic effect given by many small areas of color was desired. One type of woven fabric, the multi-colored patchwork, likewise lent itself to the same effect, and by reason of it claims aesthetic as well as technological interest.

The colors listed below are those found among the needleknitted specimens. They have already appeared in the various color charts (Tables 3 to 19), and form part of whatever computations were based upon them. The notation follows that of Maerz and Paul's Dictionary of Color in indicating plate, column letter, and row number of the printed samples matched by yarn swatches.

The tabulation makes evident that the Early Nazca embroiderers were aware in combining colors of the effect of certain values and degrees of purity. They must have been conscious of the fact that the Orange-to-Yellow hues are bright and sparkling in their light values, but appear muddy as they are darkened and grayed. They apparently did not favor the light Reds and Pinks, to judge by the great preponderance of medium and dark hues. And when they chose to use yarns coming within the groups from Yellow around the circle again to Red, they restricted themselves largely to closely related Yellow-Greens (Plate 23),[28] Blue-Greens (Plate 39),[28] and the grayed Purples, previously mentioned as noteworthy. These tendencies argue for as well-established predilections for certain colors as we ourselves entertain. The involved specimens are from only two sites in the same valley, but represent finds from six graves.[29] They constitute a fair sample by which to judge the characteristic use of color in a single fabric type.

[28] See Table 26, footnote †.

[29] The graves represented are Nazca, Cahuachi III, Ag, Aj10, Aj11, A15, Ha. The Trancas specimen, *9058, is a surface find.

TABLE 26
RANGE OF COLORS IN NEEDLEKNITTED SPECIMENS†

Color Groups	Light Hues	Medium Hues	Dark Hues, Black‡
Red-to-Orange: Plates 1–8	4 J 10	5 K 3 5 K 5 5 K 6, Crimson± 5 K 10, Ember 5 L 7, Barberry 5 L 9 5 L 11, Brickdust	6 D 11, Ginger±* 8 H 2 8 L 7 8 L 9, Chocolate±
Orange-to-Yellow: Plates 9–16	10 F 4, Maize± 10 G 2, Buff 10 K 6, Chinese Yellow 11 D 4, Maple± 11 K 8, Gold Leaf 12 F 4 12 K 1 12 K 5 12 L 7, Burnished Gold 12 L 9, Golden Yellow±	13 J 11, Sorrel 13 L 9, Raw Siena±	15 A 9, Dark Beaver 16 L 12, Bronze±
Yellow-to-Green: Plates 17–24	20 D 5 20 F 6, Pea Green±		23 E 5 23 H 4 23 J 1 23 J 4, Lincoln Green 23 L 4 24 A 7
Green-to-Blue-Green: Plates 25–32			31 C 7, Poplar± 32 J 6, Spruce±
Blue-Green-to-Blue: Plates 33–40			38 H 3 39 H 3 39 H 4 39 H 9 39 J 6
Blue-to-Red: Plates 41–48		45 B 1, Zinc 45 I 7, Amethyst±	46 A 1, Cement Gray 46 J 6, Old Mauve± 48 J 6 48 L 12, Egg Plant±
Purple-to-Red: Plates 49–56			

† Notation follows that given in Maerz and Paul's Dictionary of Color.

‡ Black, darker than any of the printed samples, appears in practically all of the needleknitted specimens. It is rarely a true Black, but most nearly matches the darkest Brown, Green, Blue, Purple.

* The ± sign indicates an approximate match.

Due to the probability that some hues were overlooked in matching yarns to the printed samples in the Dictionary of Color, a count is little more than indicative of the minimum number in a needleknitted specimen. Compilation of the number of hues counted in the more familiar types of needleknitting shows, however, the forms which tended to elaboration through the use of many colors:

Number of colors, at least	Type of needleknitted specimen
3–4	Human head ornaments
7–8	Veneered tapes with tab or fringed edge
8–14	Bird and flower fringes

The Needleknitting Technique. —The weavers of the Early period in Nazca seem to have revelled in passementeries of the 3-dimensional type and veneered bands with tabs or fringes

or both.[30] This must mean that the simpler forms in the needleknitting technique, whatever they may have been, were outgrown or had been elaborated. Whatever forms preceded them, the 3-dimensional bird and flower fringes represent needleknitting embroidery at its peak. Nothing as fine as the Larco-Herrera cloth from Paracas has been reported from Nazca Valley, but structurally the specimens from that locality are the same as those from the Necropolis at Paracas. The 3-dimensional types imply that the embroiderer did not depend on the woven material of the garment upon which to work a trimming. She visualized the finished embroidery, and provided the necessary foundations for the specific forms which she meant to make.

The needleknitting stitch itself is a variant of the cross-stitch (Plate LXIII*a*, *b*). It may be employed to make a narrow line or a wide band, but it must be constructed over foundation material or a core. Specimens of needleknitting in the Early Nazca collection illustrate types of specially constructed foundations such as narrow tapes, shapes made by buttonhole stitchery, and twists of yarn for cores. The examples already described required one, two, or three of these foundation types.

Specimen 171309, a veneered tape with tabs, has a woven cotton foundation 8 warps wide. The tabs are constructed of buttonhole stitch (Plate LXI*d*). The tape and tab fabric are covered with needleknitting. The squarish human heads also have a cotton foundation made of buttonhole stitches worked row upon row. This foundation is invisible, hidden by fine needleknitting stitches, about 24 per inch.

The construction of the bird-flower fringes must have required the greatest technical skill. Veil or mantle 171112 is a characteristic example. The main points in its analysis supplement the description of its motives and colors given above. The foundation for the "branch" element is a woven cotton tape approximately ½″ wide. This is completely hidden by the needleknitting stitches which represent the bodies and feet of the birds. The stitches are worked crosswise of the band.

The birds' heads which rise from the "branch" are shaped, and therefore a woven foundation was impractical. But a foundation built up of simple embroidery stitches (the buttonhole stitch, or coil without foundation) was feasible. The fabric shown in Plate LXIII*g* was reconstructed stitch by stitch to follow the microscopic analysis of one of the heads in specimen 171112. Shaping is shown to have been accomplished by adding stitches at certain points.

The tail feathers were veneered cores formed by tightly twisting three short lengths of cotton yarn, folded end-to-end to make a loop. The three were veneered as a group with several rows of needleknitting stitches. They were then separated so that each represented a single tail feather (Plate LXIII*f*). It is probable that this same device was resorted to when foundations were required for similar shapes.

Whether the object of the embroidery herein called needleknitting was to veneer a flat tape, a tab, a flower form, a bird, or any other foundation shape, the actual appearance of the single stitch units varies but slightly. Reconstructing an ancient technique with modern materials duplicates the effect, but does not necessarily prove that the method followed was that of the original weaver or embroiderer. From that standpoint we cannot be sure until we find a piece of unfinished needleknitting accompanied by the tool or tools used that it was made with an embroidery needle. However, the plain bands of any number of stitch loops, and any of the veneers, in fact any of the details with which I am familiar, may be duplicated according to the following directions:

Step 1. Begin with one, or any number of plain cross-stitches made in a horizontal line from left to right. At this point the needle is passed by means of a long stitch on the

[30] For an analysis of the technique see Peruvian "Needleknitting," American Anthropologist, n.s., vol. 36, pp. 405–430, 1934.

under side of the cloth so as to bring it out into position at the extreme left and just below the row of cross-stitches (Plate LXIII*a*, *b*).

Step 2. Slip the needle—but do not pass it through the cloth—from right to left under each of the crosses in turn. This step completes each needleknitting stitch in the row, and brings the needle out again at the extreme right.

Step 3. Pass the needle again through the cloth from the right to the left to bring it into position at the extreme left and just below the preceding rows of needleknitting stitches.

Repeat steps 2 and 3. Patterns are made by dropping the yarn of one color to continue with that of another (Plate LXIII*c*).

PATTERN WEAVE MANTLES

Pattern weave differs from brocade. In the latter there are basic warps and wefts which form the fabric independent of the supplementary warps or wefts which form the design motives. These last may be removed without demolition of the cloth itself. But in a true pattern weave, called figure and Jacquard weave by modern weavers, the basic warps and wefts not only make the foundation material, but also float on the surface wherever necessary in developing the design motives. If one of these pattern yarns is pulled out of the cloth some of the basic web is lost. Of the two types, pattern weaving indicates a higher stage of technical development than does brocading.

The Early Nazca collection contains one complete and two fragmentary mantles in pattern weave technique. Specimen 171119 is 40″ square, the width made by lacing two 20″ breadths together. The texture is canvas type, warp face. It has the appearance of being an everyday garment. The weave is plain, except for a narrow double-face pattern-weave border across the ends. An interesting detail shown by this Early piece may also be found in the textiles of the Middle and Late periods in Peru: the crossing and grouping of the basic warps at the point of change from plain weave to the tapestry (Plate LXVIII*c*). The method followed is the same for all pieces: pairs are formed by drawing together warps 1 and 3 and warps 2 and 4; warps 5 and 7 and warps 6 and 8, etc. The crossing prevents the weft yarns of the new technique from sliding or crowding the yarns of the finished weaving, and the grouping into 2's doubles the warp strength. In specimen 171119 the plain weave changes, after the warp crossing against slip and grouping, to tapestry weave for a few picks of weft. Tapestry weave is plain weave with the wefts so closely battened together that the warps are covered. It is an effective way to give a boundary line of color to a design band and firmness to an edge. The pattern weave which classifies this specimen is simple, and not too accurately accomplished. The design motive is a diamond with center dot set in a long rectangle below the Red tapestry stripe (Plates XLIII*b*, XLV*c*). The colors are dingy, but certain pairs may be distinguished: Orange and Brown, Light Blue and Black (almost a Jet), Pink and Brown, Blue-Green and Brown. Where the colors of two rectangles meet, the individual wefts interlock on the reverse side (Plate LXVIII*e*).

The remaining two of the trio of pattern weave specimens are alike in technique. They are fragmentary, but their widths, 23″ (full width of one breadth, 171279a) and 26½″ (partial width of 171218b), indicate that they were mantles. Flat-view diagrams of the designs are shown in Plates XLIV*a* and XLVII. Both are plain weave fabrics within which the patterns are developed on surface and reverse sides by floats of the warps and wefts.

Specimen 171279a is the simpler of the two. The set-up is in two colors, White and Brown (natural?). One unit of the repeat is given:

Colors:	W	BR	W	BR	W	BR	W	BR	W	BR	W
No. warps:	36	4	2	4	2	*6*	2	4	2	4	36

The wefts cross in exactly the same order, 36 White wefts followed by 4 Brown wefts, 2 White, etc. This weft crossing would result in a simple plain weave plaid if the warps and wefts were not allowed to "float" or "flush" over certain groups. The diagram cited shows the positions and designs developed by these floats. This specimen shows, as many do, the freedom a hand weaver enjoys. A mechanical loom is set in such a manner as to force repetitions of units at certain spaced intervals. In mantle 171279a there are a half dozen different arrangements of spacings and positions of the floats to vary the design units.

Mantle fragment 171218b is an elaboration of both the plaid and pattern by contrast with the preceding example. The technique is similar. The set-up is in Brown yarns (8 L 11), Blue (39 E 4), Pink (11 B 6), Jasper Green (32 H 9), and White. The method by which warp and weft yarns are manipulated so that floats of each will develop the design motives is shown in Plate XLVII.

GAUZE WEAVE MANTLES

Of the three fragments in this technique only one is large enough to justify placing it in the mantle class. Specimen 171110 is a torn strip 32″ long by 9″ wide. Its length is the guiding factor to its classification. The background is plain weave, the motives true gauze weave. This latter is made by drawing one active warp of a pair, or two active warps of a group of four over the passive one or two warps, and securing the cross so formed by passing the weft through it. In this specimen warps 1 and 3 are crossed over warps 2 and 4. Peruvian weavers seemed content only in rare instances to stop with simple crossings of a single or a pair of warps. They usually separated a pair to cross each single with other singles for several passages of the weft. Plate XLI*a* shows the shifts in position of any one yarn before being returned to its original place in the set-up. The effect is more like lace than is that given by our own standard gauze weaves.

The motives in the Peruvian gauze weaves are often elaborate. The style in the Early Paracas period, the Caverns, was for most complicated patterning. This Cahuachi example is white cotton with simple allover pattern in the ubiquitous stepped fret, each motive 5″ on the warp by 3″ weftwise (Plate XLI*c*).

Fragment 171141 is a plain weave cotton fabric with stepped fret motives in bands, allover effect. The yarn is dyed a darker Blue than any sample shown in Maerz and Paul.

Several small Blue wool fragments, Majoro 170476f[1], were probably part of a mantle or veil. The weave is plain with cross stripes of gauze forming the pattern. The gauze is made in the usual manner: crossing warps 1 and 3 over 2 and 4 in the same group. The count of the plain weave portion is 34 warps by 36 wefts per inch, a contrast in quality with the two cotton specimens, 30 x 24 and 26 x 26 per inch.

The fragments do not contain the complete gauze weave motive. Rows of crossed warps about 2″ long are grouped in fours to form a rectangular unit ¾″ wide. The drawing (Plate XLI*b*) shows the arrangement of these units in a stepped diagonal of gauze weaving. In addition to the decorative weave there are appliquéd S-form motives: a 3-strand braid in Gold (12 K 9) wools, and a 4-strand flat braid in Rose (5 K 9) and Dark Green (32 C 8) yarns. Appliqué of yarn-made motives is rare in Peruvian textiles.

One of the gauze weave fragments of this same mantle has a border tape 1¼″ wide still held to it with long whipping stitches. The tape was originally between two webs, since

remnants of stitches on its opposite edge show that material has been torn away. The weave is plain, with a pattern in warp floats making lozenge motives through the center of the border. The same three colors appear in the border as in the rest of the specimen, the Blue and Gold in ¼″ stripes on either side of the Rose center portion.

MISCELLANEOUS MANTLE TYPES

INTERLOCKING WARPS AND WEFTS

A unique method of patterning is illustrated by Cahuachi specimen 171221 (Plate XXXIX*d*). The weave is plain throughout, and color changes are effected by interlocking weft yarns at their points of meeting. This is tapestry weaving, but in tapestry the wefts are so closely beaten together that they completely cover the warps, forming a dense fabric. In the Cahuachi specimen the warps and wefts show equally, and the pattern as well as the basic web is as sheer as the quality of the yarn permits.

Plate XXXIX*b*, made after a reconstruction, shows the method of weft interlocking, and the manner in which the triangular projections out from the motive are woven. Those on the long sides are formed by extending the colored weft of the main decorative bands to the desired distance; but each of the triangles edging the outer and inner ends of the figure has its own individual length of colored weft which interlocks at every turn with corresponding turns of the white weft of the background. The warp-weft count per inch, 28 x 32, indicates quality of the material. The wool yarns are single-ply wools.

None of the mantle corners is complete, but two are in condition to show the color changes. The double-headed monster motives are represented with striped bodies, solid color heads, eyes and smaller details in one or another of the three main colors.

Motive No. 1, stripes:	Blue (39 J 8)	Rose (4 H 10)	Green (15 J 1)	Rose (4 H 10)	Blue (39 J 8)
head:	Blue				
Motive No. 2, stripes:	Gold (12 J 9)	Green (15 J 1)	Brown (15 A 10)	Green (15 J 1)	Gold (12 J 9)
head:	Gold				

The yarns are not consistently one color throughout a motive. For instance, both Brick-dust Red (5 L 11) and Rose (4 H 10) are found. The third corner is too fragmentary to show a color sequence, and the fourth corner is missing entirely.

Multicolored Patchwork Mantles. –The mass of wool fragments constituting Cahuachi specimen 170211e gives no indication of its original size, but at least it could not have been a kerchief, nor does its fragile texture suggest a tunic (Plate XXXIX*c*). It might have been a veil or turban piece, or a mantle. This type of fabric seems to have been well developed even in the Early period. It got its name because of its appearance, although the term "patchwork" usually implies seaming together bits of already-woven fabric.[31] In the case of the Peruvian examples, the evidence all points to their having been made wholly on the loom. Successful reconstruction of the technique has been accomplished through the use of supplementary transverse yarns, scaffolding, or skeleton wefts. Between these it was possible to set up warps of different colors, and to so group them that they formed geometric designs. When warps of two colors met on a transverse yarn, they interlocked. This allowed the transverse yarn to be withdrawn upon completion of the pattern; neglected remnants have been the clues in the analysis. Once the warps were placed, wefts of the same color—sometimes the ends of the same lengths of yarn that formed the warp setups—crossed them,

[31] Textile Periods, pp. 39, 40, 41, 49–51; figs. 8–10; plates 6a, 19. A.A., n.s., vol. 35, pp. 87–94, 1933.

and interlocked with wefts from the adjacent motives. Each detail thus woven is monochrome, in strong contrast to the other details surrounding it. Some of them, border lines especially, are so small as to have required needles for bobbins in the weaving.

This form of woven material permits a range of colors only limited by the number of geometric design units in its pattern. As a matter of fact, were we in possession of a complete piece we might discover one of the elaborately conceived color sequences in which Peruvians of all periods took delight. The design motive in both specimens 170211e and 171111 are lengthwise stripes of interlocked step frets, each outlined with a narrow band of White or Buff. The particular fragment drawn for Plate XXXIX*c* has ten colors. Matching yarn swatches from the mass of fragments to the color samples in Maerz and Paul's Dictionary revealed more:

Red-to-Orange group:
Light: Rose, 1 J 9; Red-Orange, 4 G 10, 4 K 9
Medium: Barberry, 5 L 7
Orange-to-Yellow group:
Light: Honey, 12 J 6; Gold ±, 12 L 9; Hazel ±, 13 L 9
Yellow-to-Green group:
Medium: Grass ±, 21 J 4
Dark: 21 E 5
Green-to-Blue-Green group:
Dark: 32 J 6
Blue-Green-to-Blue group:
Dark: 40 J 8
Blue-to-Red group:
Dark: Slate, 47 C 6
Purple-to-Red group:
Dark: 56 A 5

Twined and Painted Fragments.—A large irregularly shaped fragment, Cacatilla *8537, is included among the mantle types, although it may have been a veil or turban. The piece was not constructed on a loom or by interlacing warp and weft elements, but by continuously twining pairs of yarns. It is by the separation of these pairs to enclose other pairs, or by the progression of the pairs at angles to right and left that patterns are formed (Plate LIV). The whole fragment is marked off horizontally by three herringbone bands alternating with 1½″ squares in the same twining technique. The 2-ply wool yarn seems to have been a Red which in some areas matches Maerz and Paul's Reddish-Purple 47 J 1, in others Havana Rose 6 K 9. Color variations within the same piece are typical of a good many of the wool yarns. Reds often fade to Browns in which Orange, Yellow, or Red may be predominant.

Trancas *9056, a cotton fragment about 22″ square, is also included within this mantle category for want of any better means of identification than its texture and general appearance. Its warp-weft count, 34 x 26, is similar to some among the plain weave, undecorated types. The painted pattern represents birds in rows so closely set together that the effect is an allover. Two typical features of Peruvian design arrangement may be seen in the Trancas fragment. Within a horizontal row of motives, birds with three-feather tails alternate with birds with fan-shaped tails. They all fly in the same direction. The birds in the next row are more or less identical with those above them, but they fly in the opposite direction (see Text Fig., p. 135). In a more perfect piece, the diagonal lines of similar motives would be insistent.

Schematically, with the two types of birds represented by 3-F (3-feather tails) and F-S (fan-shaped tails), the result shows the following:

F-S	3-F	F-S	3-F	facing right
3-F	F-S	3-F	missing	facing left
F-S	3-F	F-S	3-F	facing right
3-F	F-S	3-F	missing	facing left
missing	3-F	F-S	3-F	facing right

The alternation of motive types within a course or row, and the alternating rows of right-face and left-face motives may be recognized as a convention among the prehistoric weavers and embroiderers. This same arrangement is found in both Nazca and Paracas textiles,

from periods at the very beginning of the Peruvian time scale as we know it, and apparently it was as aesthetically pleasing to the Inca craftsmen at the end of the prehistoric time scale.[32]

The White basic web seems to have been washed over with a neutral Green or Gray paint after the pattern was put on. The whole effect of the piece is dull. Colors identified are Golden Brown, Black, Red, and Green. Most of the birds bear seeds, plants, or leaves in their beaks. Certain resemblances to the forms painted on the Early Nazca pottery may be recognized.

[32] Textile Periods, plates 29 and 30. The motive is llamas in these Late textiles, but the Early period birds are arranged in like manner.

EARLY NAZCA TUNICS

The Early Nazca collection contains four tunics—two children's, two adults'—sufficiently complete to allow determination of several characteristic technical and decorative details. Other specimens have been allocated to this group on the basis of their resemblances to the better-preserved pieces. These more or less unidentifiable tunic fragments will be considered separately.

The available material is too scanty to justify many inferences. What we should like to know is whether the wool or the cotton tunics were considered the finer, and whether any type of decoration was locally favored. In the following tabulation the full length of the tunic as worn is just half the length of the woven web.

Specimen number	Full length of garment	Full width of garment	Proportions W : L	Warps per inch C2	Warps per inch W2	Wefts per inch C2	Wefts per inch W2
Children's:							
171071d	10″	15″	1.5	40	..	36	..
171266b	26″	22″	0.85	32	..	30	..
Adults':							
171217a	33″	46″	1.4	..	44	..	20
171308	39″	45″	1.2	..	42	..	18

From the standpoint of proportions, the tunics and mantles cannot be compared, since one is woven for wear as a rectangle, and the other, although woven a rectangle, is folded on the crosswise center and seamed up the sides. The textures of the two garment types differ, also. The median warp-weft count for the mantles is 32 x 26, the count for a wool specimen; both cotton tunics are finer than this. The wool mantles are heavy, but less because of the closeness of their basic weaves than because of the weight of their fringed edges; the wool tunics are definitely warp-face, one or two of the fragments in the unidentifiable group being similar to tapestry in quality.

Since the tunic is not only a woven web but also a seamed and decorated garment involving a number of different types of workmanship, I shall first present a summary analysis of each of the four specimens, and after that a detailed analysis of each of its technical features.

(1) Child's tunic. Cantayo C-ax 171071d (Plate XXXIV*d*). Size of complete web, 20″ x 15″; side selvages whipped together to form garment; plain weave warp face; 11″ Kelim slit left for neck opening. Needleknitted binding around neck opening 7 loops wide, 5 of which show on surface side of the garment; 5 loops wide on edges of armscyes. Fringes, needlemade, 1″ deep around bottom; also at armscyes. Yarn counts, 40 warps by 36 wefts per inch of 2-ply brown cotton, hard twist; yarn in bindings, 2-ply wool dyed various colors.

The Kelim slit is a familiar Peruvian type of neck opening (Plate LXVIII*g*). It is constructed by turning wefts proceeding from opposite side edges around adjacent warps at the center of the piece. Since these meeting wefts do not interlock, an opening of the desired size is left in the lengthwise center of the web. The needleknitted edge finish in one or another of its variations is also a familiar technique and occurs in all periods on cloths from central and southern sites.[33] The form found on this tunic specimen, a binding, is often patterned, and in this case has small plant-like motives at close intervals (Plate LXI*e*). These are in a maintained sequence of Light Green, Coral, Dark Green, Yellow, Navy Blue,

[33] American Anthropologist, vol. 36, pp. 410–411.

Orange, and Black on a Rose-Red field. The method of making a patterned band is shown in Plate LXIIIc. The fringes were apparently made after the weaving was completed by drawing two extra strands of yarn down and up through each weft turn at the armscye edges and through each warp turn on the bottom or loomstring ends (Plate LXVIc). Loops of desired length were left, groups which, due to the tightly spun yarns, twisted about each other.

(2) Child's tunic. Cahuachi 171266b (Plate XXXIVc). Size of complete web, 52″ (including fringe) x 22″; side selvages, whipped together to form garment; plain weave; Kelim slit left for neck opening in both the main web and in the separately woven band which forms the foundation for the embroidery; fringes at armscyes and around bottom of tunic. Embroidery across shoulders of garment in addition to that on the separately woven bands appliquéd at neck and at armscye edges. Remnants of feathers in three places between shoulder motives, each feather tied on by its quill. Yarn counts, 32 warps by 30 wefts per inch of 2-ply white cotton; applied fringe yarn, 3-ply white cotton of two different sizes; embroidery yarn, 2-ply wool, various colors.

The Kelim slit opening is woven in the customary manner but is later reinforced by two rows of blanket stitching (Plate LXa).

The fringes are of two types: that around the bottom of the tunic is made by leaving the desired length of warps unwoven below three heavy loomstring wefts (Plate LXVIa). The 6″ depth is unusually long for this type of construction. The armscye fringes might be described as woven and subsequently applied to the edges. Two warps close together and a third 5½″ distant provided the foundation for weaving. Upon completion of the desired amount of fringe the third warp was withdrawn, leaving long weft loops to twist together in groups (similar in construction to that shown in Plate LXVId).

The embroidery which is done directly on the tunic is in the form of solidly worked rectangles approximately ¾″ by ½″, alternately Red and dark Brown, seven rows of six across one shoulder, and nine rows of six across the other. The embroidered appliquéd bands, 1″ wide, show flower or fruit forms and monster heads in Rose, Black, two Yellow-Greens, Gold, Ecru, and Brown wool yarns on solid Red fields (Plate LVI).

The embroidery is the simple outline or stem stitchery in rows set close together (Plate LXg). For the small rectangles, the usual length of stitch is equivalent to the diameters of four warps. Where the design requires curved lines, the stitches are somewhat shorter. The work progresses from left to right with the needle passing over four warps, back under two on the reverse side, over four from this point, and so on.

(3) Man's(?) tunic. Cahuachi 171308 (Plate XXXIVe). Size of complete web 78″ x 45″ (two breadths seam-joined); side selvages whipped together to form garment; plain weave, warp face; interlocking warps and wefts, Kelim and eccentric tapestry variations. Fringe across ends and armscye portion of side edges. Yarn counts, 36, 40, 52 warps by 18, 20 wefts per inch (the differences depend upon the portion of the tunic surface selected for count) of 2-ply natural(?) and dyed(?) wool. The yarn used in the tapestry woven borders is the coarsest.

The two webs forming the garment were separately woven. Saddler's seams join the two at center front and back; plain whipping seams close sides (Plate LXVIIc, j). Plate XXXIVe shows the 4½″–5½″ blocks of contrasting color which form the central portion of the tunic front and back. Five skeleton wefts were necessary in order to effect the color changes. The warps for each block were crossed only by wefts of the same color. These interlocked at the side edges. The type of weaving which involves skeleton warps, wefts, or

both, and interlocking basic warp and weft elements has been called "patchwork" although no stitchery enters in as seems implied by the name.

The body of tunic 171308 is Bronze Brown (15 H 11); the blocks are Yellow Beige (13 H 7) and Chocolate Brown (8 J 10). Tapestry borders in several other colors are woven about an inch up from the end loomstrings. Upon changing from the plain weave of the garment to the tapestry variation, the warps are grouped in fours, and held in these groups by two rows of twined yarns (Plate LXVIII*a*). These outline the two edges of the borders through which a center line of zigzags forms reciprocal triangles. The Orange yarns making the zigzag are put in by a tapestry technique called eccentric wefting.[34] Finally the twining yarns and the eccentric wefts are twisted or are plaited together on the reverse of the garment at the side seams (Plate LXVIII*a*).

The colors of the triangles formed by the zigzags are exchanged at intervals of six inches, approximately, according to the following plan:

R R R R R R G G G G G G R R R R R R B B B B B B
G G G G G G R R R R R R B B B B B B R R R R R R

A fringe of unwoven warp lengths finishes the lower edges of tunic 171308 (Plate LXVI*a*), and separately woven fringed bands are sewn to the armscye edges. These bands, 16″ x 1¼″, contain the same zigzag pattern as that of the lower edge borders except that Red yarn always makes the outer triangle. In weaving, this Red yarn is carried beyond the outer edge of the band to a skeleton warp or similar device 7″ distant (Plate LXVI*d*). The subsequent removal of this warp results in a deep fringe. Both the bottom and armscye fringe yarns cling to each other and twist so tightly that instead of soft loops there seem to be fairly good sized cords pendent from the edges.

(4) Man's(?) tunic. Cahuachi 171217a. Size of complete web 66″ x 46″ (two breadths seam-joined); side selvages whipped together to form garment; plain weave, warp face. Embroidery and fringe across ends; tapestry woven band and fringe for armscye portion of side edges. Yarn counts: main web 44 warps by 20 wefts per inch of 2-ply wool, dyed, crêpe twist; tapestry bands, 14 warps of 3-ply white cotton, each ply double, by 22 wefts of 2-ply dyed wool per inch (Plate XXXII, Frontispiece).

This tunic is seemingly a finer garment than Cahuachi tunic 171308 described above. The basic web is a rich Red and the tapestry band (10½″ x 3″) seamed to the armscye has zigzags lengthwise of the piece woven in Kelim and eccentric tapestry techniques (Plate XXXVIII*d*). The sequence of colors is irregular: Yellow, Red, Blue, Yellow, Purple, Yellow-Green, Red, Blue, Yellow. The separately woven fringes of Blue-Green wool are attached to the outer edges of the bands. These were made over five closely set warps and a sixth placed at a distance of 6″. This last was withdrawn upon completion of the weaving. The fringes around the lower edge of the tunic are unwoven lengths of warp loops approximately 1½″ deep. A bunch of these loops is separated into two heavy "warps," those coming over the original loomstring forming one, those coming under the loomstring forming the second. A loosely twisted Blue-Green yarn woven over the two "warps" in figure-8 technique produces the effect of a soft flat knob (Plate XXXVIII*c*). Just above the fringe pairs of yarns in two colors (Green-Blue with Blue; Golden Brown with Yellow-Green) are twined to form two narrow borders. The work began at the right, leaving a loose end of the yarn extending beyond the edge, progressed to the extreme left, then back to the right again, leaving a second length of yarn. Repeating with the second yarn of the color pair furnished four ends at the side edge. These were plaited in a flat braid in which was maintained the same arrangement of colors as in the stitchery.

[34] M. D. C. Crawford, Amer. Mus. Nat. Hist., Anthr. Papers, vol. 12, p. 91, fig. 19, 1915.

Decoration for Kelim Slit Neck Opening.—Cantayo 171071b, a complete specimen, presumably was intended as a trimming for the neck opening of a tunic (Plate LXII*c, d*). The piece is noteworthy because the method of its construction is clearly visible, and the quality of workmanship unusually fine. A plain weave cotton foundation band (14½″ x 1⅝″; 44 warps x 40 wefts per inch) was woven with a long Kelim slit (Plate LXII*c*). A second type of foundation, a small rectangle ⅝″ x ½″, was built up row upon row with buttonhole stitches (Plate LXV*a*). There are sixty-eight of these tiny tabs edging the band. The surface side veneer on band and tabs is needleknitted: a Red ground with bird motives in a variety of colors on the band, a plant-like motive on each tab. Perhaps a regular sequence of colors was planned since three of the motives on one side of the slit are duplicated by three motives on the opposite side. Each bird motive is subdivided into the following color areas: head, eyes, nose, beak, the object held in it, body, wings, wing tips, tail, tail tip. Some of these are given a decorative spot, and every detail is bounded with a Black line one loop wide. The ten or a dozen colors are similar to the Red (5 L 11), Blue (39 J 6), Yellow (10 G 2), Orange (11 K 8, 13 L 9), Yellow-Green (23 J 4, 32 J 6) of the needleknitted bird-flower fringes described in the mantle section. To develop a design involving a number of colors was not, I believe, especially difficult, but it did mean carrying along all of the yarns required by the motive so that each might be available when needed in a certain position (Plate LXIII*c*). The embroidery yarns are usually hard twisted, a feature that would add to the difficulty of manipulating them.

Tunic Materials, Identified by Stylistic Features.—Three other Cahuachi fragments are similar in texture and details to tunic 171217a. The most complete is specimen 170211f, which measures 30″ x 15″. The fabric is a plain weave, warp-face wool, yarn count 46 warps by 24 wefts per inch, woven with 2-ply yarns. Whipping stitches remain to show the seam-joined breadths down the center of the garment and at the side selvages. Across one edge, corresponding to the bottom of the tunic, there is a short fringe of unwoven warp lengths. Twining weft yarns in Dark Brown and Cream wool yarns head the fringe. This technique is also found on tunic 171217a.

Specimens 170211g and 171118c are very small fragments of dark wool fabrics. The first has a warp-weft count of 64 by 24 yarns per inch, and the second 76 by 18 per inch. All the yarns are 2-ply wools. The yarn counts of these fragments together with the two better-preserved garments indicate an appreciable range in quality: 42, 44, 46, 64, 76 warps per inch; 18, 18, 20, 24, 24 wefts per inch. Warp-face materials as closely woven as these have the appearance of fine canvas-like fabrics.

One of the main criteria for including specimens 170211f, g and 171118c in the tunic group with specimen 171217a is the similarity of their dyed yarns. As with other specimens, there are too many variations in the color of large areas to be certain of the original hue. Tunic 171217a is Red-Orange, matching Maerz and Paul's 5 J 11 and 5 L 11 (Brickdust); fragment 170211f is slightly grayer and darker, 6 L 11, almost an Indian Red; fragment 171118c is Red, but a darker, Purplish or Haematite Red, 7 J 3; and specimen 170211g is darkest of all, a Purplish Brown, 8 H 6.

A fragment of woven fringe, Cahuachi 171118b, is constructed like those found around the tunic armscyes. The foundation is typical: several warps, in this specimen two, close-set, and a skeleton warp at the desired depth of the fringe away from the others. The colors of the wefts are in a regular sequence, to judge from the 3″ fragment: Black, Red, Yellow, Green, or Blue as 1–2–1–3, 1–2–1–4, repeat.

EARLY NAZCA KERCHIEFS AND VEILS

For want of a better term relatively small webs decorated in various ways together with two sets of trimming bands similar to those found on intact specimens are classified as kerchiefs. They may have been worn as head coverings, or veils, except that the texture of the material does not warrant the latter word in most instances. All but one are cotton pieces. The decorative yarns are invariably wool.

The sizes, yarn counts, and methods of decoration by which one sub-group is distinguished from another appear in the following tabulation:

Kerchief type	Specimen number	Complete length	Complete width	Proportion W : L	Warps per inch	Wefts per inch
Undecorated.....	171071a[1]	14	15	1.07	30	38
Weft stripes.....	171305c	frag.	frag.	.....	20	26
Applied bands.....	170462b	frag.	frag.	.....	36	24
Applied bands.....	171033	16	14½	0.906	42	30
Applied bands.....	171059	6½	9	1.38	34	22
Applied bands.....	171226	18½	20	1.08	36	40
Embroidered.....	*9120	11½	13½	1.17	34	26
Embroidered.....	171266a	frag.	frag.	.....	38	32

The main difficulty with the classification as presented is that it does not provide any clue to the differences in texture. These set apart two fragmentary pieces in particular: Cahuachi 171266a and 171305c. Each is further distinguished from the other specimens by having a simple knot tied in one of its corners. Both are in extremely fragile condition, but specimen 171266a was originally 31″ wide, to judge by a 15½″ breadth and a portion of a second still attached to it by fine seaming stitches. The other specimen is charred beyond possibility of measuring.

Both veils are patterned. Specimen 171266a has small rectangular motives (approximately ⅝″ by ¾″) set in one inch from the side edge, and about a half inch apart (Plate LX*c*). The lines filling the rectangles are made by a double running stitch similar in appearance to twining in basketry or weaving. After one series of running stitches outlined the form of the motive the spaces between the stitches were filled by a return series. The twining effect is gained by inserting the needle first above and then below the original stitch as shown in the drawing. The fragment is not long enough for a repeated sequence, if there ever was one. The single-ply dyed wools used are still bright and fresh looking. Matched to the printed samples in Maerz and Paul's Dictionary, they were found to be the following, in the order given: Tan (approximately 12 L 8), Grass Green (approximately 21 J 4), Purple-Red (43 H 5), Shell Pink (1 C 10), Green-Blue (39 H 3), Bronze (14 L 9), Dark Green (32 J 6), Barberry Red (5 L 7), and Yellow-Orange (12 A 8).

Cahuachi specimen 171305c is patterned by a very simple method of striping, but one I do not recall having seen before among ancient Peruvian textiles. Weavers of pre-Incaic tapestries usually began their patterned areas and zones with a series of lines and narrow monochrome bands running weft-wise. Other striped fabrics are usually warp face materials, with stripes running warp-wise. This Cahuachi fragment has a yarn count which shows it to be weft face, 20 warps by 26 wefts per inch, but the general effect is that of a gauzy material, similar to a square count fabric. The unusual feature is the introduction of a series of colored single-ply wool yarns in crosswise stripes of Bronze (approximately 14 L 10 and 16 L 12), Rose (4 I 10), Olive Drab (approximately 15 L 5), Etruscan Red (4 H 11), and Orange-Yellow (11 H 10). These are not battened down tightly, but are slightly spaced to

the same degree as are the cotton wefts, contrasting strongly with the usual weft-wise stripes of tapestry (Plate XXXVII*j*).

Majoro 170462b, also veil-like in texture, apparently was used on the head, judging from the quantity of human hair among the fragments (Plate XXXVII*b*). It is a plain weave material, made of single-ply crêped cotton yarns. A ¾″ band is sewn to the edges of some of the bits. That, too, is plain weave with a set-up for warp stripes: a dull Bluish-Purple (47 E 1) in the center, 3 Brown (15 E 8) and 2 Red (4 J 10) stripes on either side.

One other specimen, Cantayo 171033, deserves special treatment (Plate XXXVII*g*). It is an all-wool striped piece, similar in general effect and decorative features to the Cahuachi striped wool mantles already described. The amount of actual handwork represented by this kerchief is out of all proportion to the effectiveness of the result.

First, the weave: a set-up for stripes in three colors, 4 Black yarns, 4 Yellow yarns, 4 Red, 4 Yellow, 4 Black, etc., with a variation in stripe widths due to crowding together the Yellow warps. This makes the Yellow stripe a finer weave than the Black or Red ones.

Two complicated edging lengths, each of which is seamed down a long side and part way across the two ends, make this kerchief a miniature mantle. As was noted above, the striped wool mantles of Cahuachi and the Paracas Necropolis embroidered mantles illustrate the same conventional arrangement of trimming: side trimmings—fringes or tabs—and embroidered borders which extend around each corner for a distance, leaving a center space at either end (Plate XXXIV*b*).

The ½″ edge trimming of kerchief 171033 consists of three parts, as shown in Plate LXIV*c*.

(1) A brown cotton tape 6 warps wide (⅛″), the foundation for stem stitch embroidery which completely covers it. The ground work is Red, and the minute motives (leaves? flowers?) are in six other colors: Rose, Yellow-Orange, Green, Blue-Green, two Blue-Purples. The embroidery is on a smaller scale than is usual through being confined to the space represented by two warps, since the outer two on either side of the tape are used for fringe and "picots."

(2) A ¼″ fringe made of a length of yarn woven figure-8 fashion between one edge warp of the foundation tape and two extra warps, the outer one a skeleton. The latter was withdrawn upon completion of the weaving.

(3) Small "picots" set ⅛″ or less distance apart on the side of the tape opposite the fringe. In reconstructing these, as the drawing shows, the whipping stitches progressing from the left were elongated to extend between the tape edge and a skeleton yarn. Three of these stitches equalled six "warps" upon which the same length of thread that made them wove the tiny rectangular tabs. The drawing can give no conception of the effect of the fringed tape. It is colorful, but, as has been said, is too small to be truly effective. It compares, I think, to the fine needlework of our own times which spells achievement rather than an aesthetic result.

The other specimens in the group are similar in texture to some of the mantles and aprons. They are plainly a less elegant type of garment than those already analyzed.

Cantayo specimen 171071a[1] has no feature technical or otherwise except its size to give it character.

Embroidered kerchief *9120 from Nazca Valley and Cahuachi flower mantle 171222 are two of the few allover patterned pieces from this period. The kerchief motives, crosses and rectangles in rows, appear to have been worked with casual regard for sizes, placing, or color sequences (Plate LV*a*). Several of the crosses are in two colors as if the embroiderer had made use of short lengths of yarn.

The stitch is a long double running stitch in which the embroidery yarn is left slack enough to cover entirely the basic weft yarns (Plate LX*i*). The work is mediocre by comparison with the same type done on the four-warriors mantle 171216. On opposite diagonal corners there are Red and Yellow tassels made by drawing 18″ lengths of yarn through the tips and there twisting the ends together. The usual Peruvian colors are present, together with Purple-Red (48 H 2) and dark Purple-Blue (48 E 10), of special interest in the Early Nazca period.

Kerchief 171059 is a cotton rectangle measuring less warp-wise than weft-wise (Plate XLIII*c*). This is rare. Separately woven pattern bands with warp-loop fringes are sewn to the side edges. Each band is a warp set-up of Red, Black, and Bronze-Green yarns arranged in the following order: stripes of 2 Black yarns and 2 Green yarns on either side of a center portion of 12 yarns: 6 Blacks alternating with 6 Reds. The block pattern in the center portion is single face. Unlike most pattern weaves, this type is a simple variation of the plain weave without floats. All the warps making the side stripes are crossed each time in regular fashion, but upon reaching the 12 Reds and Blacks in the center, the Reds are left down and the Blacks are brought up (Plate XLIII*a*). For four picks of weft these only are crossed as in plain weave, over one, under one. Upon completion of the four picks, the Blacks are left down while the Reds are brought up to become warps. The alternation of Reds and Blacks for warps makes loose texture blocks of one color on the surface of the fabric, and long floats of the other color on the reverse side. In contrast to the 34 x 20 cotton yarns per inch in the basic web, the applied all-wool bands have 40 warps and 20 wefts per inch.

One of the Cahuachi fragments identifiable only by its style is entered here because of its similarity in design and technique to Cantayo specimen 171059. Cahuachi 171118e is a patterned band 1¼″ wide. Its center portion consists of a line of Red rectangles framed and centered with Black (Plate XLIII*d*). On either side are the usual Red and Black stripes. The set-up for the center alternates 2 Black yarns with 2 Red yarns, total 26. The manipulation of the warps is identical to that in specimen 171059; whatever warps are brought up are crossed in plain weave fashion by the weft; the remaining warps, of the contrasting color, are left inactive as floats on the reverse side (Plate XLV*a*, *b*).

Cahuachi kerchief 171226 (Plate XLIII*e*) has a much more ambitious pattern, but is technically the same as Cantayo 171059. The plain cotton web is bordered on each side with separately woven wool bands joined to it by stitchery. The bands have warp-loop fringes. The warp set-up for the stripes on either side of the patterned center is as follows: 4 Red yarns, 4 Yellow-Orange, 4 Red, 4 Dark Green, 4 Red, 4 Purple-Black. Next comes the set-up for the patterned portion: 2 Purple-Black yarns alternating with 2 Yellow-Orange yarns, total 34. The flat-view diagram, made from a reconstruction of the original, shows where the light yarns are brought to the surface to make the pattern, or are left down, inactive, while the dark yarns are brought up to form the background (Plate XLIV*b*). The interlacing is invariably over one, under one on the surface side. The inactive yarns whether pattern or ground yarns appear as very long floats on the reverse side.

The design motive in this pair of borders is the familiar Nazca bird with its bill in an open six-petal flower. The arrangement of the birds illustrates the conventional Peruvian double inversion involving reversal of the two opposing bird elements on a horizontal and vertical axis.

A pair of woven bands (Cahuachi 171225) are almost certainly kerchief borders. They measure 21½″ by 1½″, are fringed at the ends with unwoven warp loops, and are patterned in a style similar to that of Cahuachi 171226, though not by means of the same technique.

As in the case of the other kerchief borders there are outer warp stripes of close-set yarns—Red, Yellow-Orange, Black—on either side of a central portion that is woven in Kelim tapestry technique (Plate XXXVIII*a*).

In specimen 171225 we have one of the infrequent illustrations of weft-to-warp change (Plate LXVIII*d*). That means that when the warps were set up for the stripes, the two outside color groups—Red, Yellow-Orange, Black—were spaced far enough apart to allow for the center patterned portion of the band. Each weft crossed the first series of stripes, then the ½″ space, and then the second series of stripes, regularly, as in ordinary plain weaving. The wefts crossing the space subsequently became the warps upon which flower motives in a dozen colors were woven in Kelim tapestry. The wefts may have been put in with sewing needles, judging by the fineness of the details. The quality of the band is fine, 44 warps by 20 wefts per inch. The tapestry yarns are single-ply and 2-ply wools.

Cantayo 171045, a fragment 8½″ by 9½″, is put in the kerchief group because it resembles specimens in no other (Plate LV*b*). One feels that the piece must have been a small rectangle but there is no detail to give certainty. Like the surface find, "Nazca" *9120, the Cantayo specimen is patterned with allover embroidery. The motive is the familiar step-fret done with a double line of stem stitches in dark Brown wool yarn, probably natural color, the motives so arranged as to give prominence to diagonal lines.

The scalloped edge finish is of cotton yarn like the basic web except that wherever a dark line of embroidery comes to the edge, the scallop at that point is made with the dark wool yarn. The method of making the scallop detail can best be understood from the drawings in Plate LXV*e*, *f*, the former made from a reconstruction. The technique illustrates the ingenuity of the embroiderer, who could, as she did in this case, combine at will whatever devices in stitchery and weaving suited her purpose. She provided a foundation upon which to work the scallops by making a couple of circular loops of the sewing thread, and between the bottom half of this heavy circle and the edge yarns of the fabric itself she wove in figure-8 fashion. The turns at the top of the circle float across the scallop.

EARLY NAZCA APRONS

Two complete aprons and portions of two others comprise the material from which to draw generalizations as to this Early Nazca garment. Fortunately, the pieces come from three different graves, which gives some ground for assuming that the characteristic features are local rather than the result of an individual's fancy.

Cahuachi specimens 171181 and 171215 are plain weave, undecorated cotton rectangles of medium fineness. Strings or ties of approximately equal length and width extend from each of the four corners (Plate XXXIV*a*). There is a difference in length of one inch between those extending from the corners on the upper side, say, and those extending from the corners on the lower. Perhaps it is only a coincidence that the measurements differ to that degree on both specimens, or perhaps the method of wearing the garment regulated the lengths.

The Red needleknitted edge bindings on all the tie ends in the group seem to indicate a conventional finish. Those on apron 171181 and fragments 171267b are simple 5-loop bindings (Plate LXIII*d*). The ends of tie specimens 171223b and apron 171215 are more elaborate. The first has humming birds alternating with flowers, each tiny motive about ¾″ high, spaced approximately four to the inch (similar to motives in Plate LXII*a*). The birds' heads which project from the bindings on apron 171215 are about ½″ high, and each one is developed in four or five colors. Lines of contrasting color on the binding itself represent the tail feathers. Both of these specimens represent very fine needleknitting technique. The usual dozen or more colors are to be identified in the bird-flower bindings. The weaving yarns are 2-ply cotton. All the decorative yarns are 2-ply wools.

The tabulation shows the main technical features of this small group.

Specimen number	Complete length of web	Complete width of web	String lengths	String widths	Warps per inch	Wefts per inch
171181	37½″	15½″	27″; 28″; fr. 13½″; fr. 20″	2″	30	30
171215	44″	21″	35½″† 36½″†	4½″ 5½″	40	36
171223b	.....	.....	34½″†	7″	30	32
171267b	.....	.....	fr. 2″	4″	34	34

† Two strings of this length.

THE MISCELLANEOUS GROUP

Practically every specimen in this group is in a fragmentary condition. As a consequence, the names chosen to distinguish one type from another are often purely descriptive. The particular uses of ancient Peruvian fabrics can be determined from their representations on the pottery, as Montell has so clearly shown us,[35] but it is difficult if not impossible to identify the smaller accessories of costume.

The variety of details, ornamental or purely utilitarian, which are brought together from the Early Nazca sites represented in the collection for analysis in this section can best be appreciated when they are listed: bands or ribbons, cords, nets, pads (for deforming infants' skulls as at Paracas?), wrappings, slings, a girdle (?), a scrap of feathered material, a scraper (?). In addition to the fact that there are these distinguishable types, there is also a wide range of techniques.

BANDS

To classify as bands the narrow, individually constructed specimens in the collection, it is necessary to include some fabrications not made by warp-weft interlacing. These are the twined and plaited specimens. The pieces to which the term has been applied are listed in the following table.

TABLE 27

BANDS: WOVEN AND FABRICATED BY OTHER TECHNIQUES

Specimen Number	Length in Inches	Width in Inches	Techniques			
			Woven	Plaited	Twined	Embroidered
170211d[1-5]	frags.	¼	5	..	..	..
170211d[6]	frag.	¼	..	1	..	..
170465e	frag. 8½	½	1	..	..	..
170476c	frags.	¾	..	..	1	..
170476d	frag. 8½	2½	1	1	1	..
170476e	frag. 8	¾	..	..	1	..
171049	frag. 16	1+	..	..	..	1
171050	frag. 4½	½	..	..	..	1
171054	frags.	?	..	..	..	1
171109a[1-2]	mass	¼	2	..	..	..
171109b[1-4]	frags.	¼	4	..	..	..
171109c	frags.	¼	..	1	..	..
171116b	frags.	½	..	1	..	..
171118a	frag. 17	2½	1	..	..	..
171118f[1]	frag.	⅛	..	1	..	..
171118f[2]	frag. 14	¼	1	..	..	..
171118f[3]	frag.	⅛	..	1	..	..
171124a	frags.	¼	1	..	..	..
171124b[1-4]	frags.	⅛	..	4	..	..
171124c[1]	frags.	⅛	..	1	..	..
171124c[2]	frags.	⅛	..	1	..	..
171140a	frags.	1+	..	..	..	1
171140b	frags.	1+	..	..	..	1
171140c	frags.	1+	..	..	..	1
171227a	frag. 82	¼	1	..	..	..
171227b	frag.	¼	1	..	..	..
171238b[1-2]	frags. 80	¼	2	..	..	..
171258a, b	mass	¼	2	..	..	..
171280	frag. 14	5	1	..	..	..

[35] Gösta Montell, Dress and Ornaments in Ancient Peru, Archaeological and Historical Studies, Göteborg, 1929.

WOVEN BANDS

Cahuachi 171118a is the simplest of all the specimens in this group. It is a plain weave, cotton fragment, 2½″ wide, 96 warps by 24 wefts per inch, with only its unusual closeness of weave and its Blue-Black color to give it character. It seems to have been used for binding, to judge by the sharp crease through the lengthwise center.

Majoro ribbon 170465e is the most attractive of the plain weave specimens in the group (Plate XXXVIII*b*). It is in Kelim tapestry technique, of a very fine quality of workmanship, as may be judged by the warp-weft count: 26–28 warps by 176 wefts per inch. The fragment is complete as to width, ½″, but the count per inch is given in order to better contrast the quality of this Early Nazca tapestry with fine garment pieces of the Epigonal period: 46, 38, 58 2-ply cotton warps by 180, 216, 200 2-ply wool wefts per inch.[36] During this latter period tapestry weaving reached its technical peak. The drawing gives a good idea of the design motives and their arrangement. Lozenge shapes with the long axis running crosswise seem a little unusual. The diamond motive is most often found in the twined pieces, and in them is always set lengthwise. There is a repeated sequence of four colors on the medium Rose (5 H 9) ground: Yellow-Brown (13 K 8), Dark Rose, Rose, Purple-Red (7 C 5). All the outlines around the figures are Brownish Black. One of the noticeable features in this specimen is the disintegration of the Rose yarn, leaving the warps practically bare. I do not recall other specimens in which this color has deteriorated. Usually it is the Blackish or other very dark yarns that fall from the web.

Cahuachi specimen 171280, a striped wool fragment, looks as if it were intended for a headband or girdle (Plates XXXV*a*, XXXVII*d*). It is 5″ full width, folded through the center, whipped together on the edges, and in addition has two heavy twists of yarn sewn to them. The wools used in the stripes, which vary ¼″–½″, appear to be natural colors: "White" (12 F 5), medium Brown (Adobe, 14 D 7), dark Brown (8 C 10 and also 8 E 12). The drawing gives a better idea of the end finish than words can.

Majoro band 170476d is the single example of double cloth in the collection (Plate XLII*a*). It is double cloth of the standard type constructed of two independent sets of warps and wefts. The latter, in addition to crossing their respective warps, whether they be interchanged with the opposite set or not, turn about each other at the side edges, thereby locking the webs at this point. The simple design motives are rectangles the width of the band on a Rose (5 K 9) ground. Each motive is woven in three colors provided for in the warp set-up: 4 warps of Burgundy (56 H 9, which looks Black in the piece), 4 warps of Green (32 C 8), 2 warps of Gold (12 L 9). A single Rose yarn alternates with each yarn of any other color. When the Rose set is crossed separately, the web is monochrome; when the tri-color set is crossed, there are warp stripes. All the yarns are 2-ply wools.

Three short fragments in a combination interlacing-twining technique extend from the end of the 8″ band. In reconstructing the technique it was feasible to begin with the interlacing which furnishes the foundation of the strand. It is not real plaiting, not a technique which makes a uniform strand if used alone, and yet it is not weaving either, since it requires but one set of elements (Plate XLII*g*). Following is the series of movements for strands in positions 1, 2, 3, 4 (the strands shift from one side to the other, but each is identified by its position at the moment, not its original one): 3 over 2, under 1; 4 under 3, over 2. Those two movements provide a center for the twining strands, 6 to twine around strands 3 and 4, and 6 to twine around strands 1 and 2. Plate XLII*g* shows how the lower member of a twining pair always comes up to the right of the upper member. It also shows the small

[36] Textile Periods, p. 45.

centers formed by the four interlaced foundation strands which are independent of the twining elements.

The three short lengths made by interlacing-twining, 16 strands in each, are brought together into one 48-strand flat plait. The technique is simple: single outside strands alternately the right, then the left, come to the center crossing over 4, under 4, over 3, with the left active strand always crossing over the right active strand. What gives the plait a complicated appearance is the cross striping. This, too, is simple, being dependent upon the initial placing of the strands coming from the three 16-strand interlaced-twined lengths. The colored yarns in each were arranged in the following order:

11 22 33 44 11 22 33 44 11 22 33 44 44 33 22 11 44 33 22 11 44 33 22 11

Majoro 170476d is only a fragment of its original length, but the remnant suggests that the band, whatever it was used for, must have been in the quality class of accessories. Even in its present state, it illustrates the fineness of Early Nazca double cloths, 16-strand interlaced-twined braids, and a 48-strand plait of unusual color arrangement.

Cahuachi specimens 171109a[1-2] represent a type of narrow weaving to which has been given the name "turban band" (Plate XL*c*, *f*). What the original length of these specimens was, and on what form or foundation they were shaped for wearing can only be conjectured. Specimen 171109a[1] is literally a formless mass of material, measuring approximately 25 yards. Specimen 171109a[2] consists of three bunches, each in form resembling a festoon. The best-preserved is 9″ across approximately, composed of a group of 34 separate wool tapes wound around at intervals of 12″, 16″, and 20″ from one end with wool strands to hold the group together.

The construction of these turban bands is by plain weaving, but done so ingeniously as to create a unique result. There are only two warps and six wefts, 2 Red, 2 White, 2 Blue (171109a[1]). The interlacing over the two warps is regular, but it is done by each of the six wefts in turn: Red, Red, White, White, Blue, Blue. This brings all to the same side of the warps. On the return to the opposite side, the last weft across becomes the first, and the order is Blue, Blue, White, White, Red, Red. The drawing shows the scalloped edges which result. Imagine this a quarter of an inch wide and correspondingly thick.

Specimen 171109a[2] is identical except for the colored wefts: Green, Brown, Red.

Striped Turban Bands.—The seven remaining specimens listed in the column of woven bands are alike in technique: narrow set-ups of wool warps, the odd-numbered of one color, the even-numbered of a contrasting color. Plain weaving brings up all of one color on the first pick, all of the contrasting color on the second pick, and so on alternately. Crosswise stripes are the result. The weft elements are of three types:

(1) A single weft element consisting of a 2-ply wool yarn or a doubled 2-ply yarn crosses from side to side regularly (Plate XL*b*), as in specimen 171227. Such wefting produces a thin turban band.

(2) A pair of weft elements which enter the shed separately, one from each side, passing each other and exchanging positions. Specimen 171124a has a warp set-up of Yellow and Red yarns, but the two Green-Blue wefts form visible color lines on the side edges.

(3) Two pairs of wefts of different colors work in this manner: when the odd warps are raised, the pair of one color enter separately from opposite sides of the web, passing each other in the shed. On the next pick, when the even warps are raised, the pair of the second color enter separately from opposite sides of the web, passing each other in the shed (Plate XL*a*). Besides involving three more weft yarns than the first method does, and making

the turban band thicker, the edge is given added strength and decoration. Specimen 171118f[2] has Red and Brown warps, and pairs of Red and Brown wefts.

The turban bands with crosswise stripes are of fairly consistent quality. The warp-weft counts are approximately 10 or 11 by 2 or 3 for the quarter inch width, equivalent to 40–44 by 12–14 for the inch.

The colors, also, are within a narrow range. Following the plan adopted for other subgroups in the collection, the tabulation shows the combinations which seem to have been favored by the Early Nazca weavers of turban bands. None of the colors is unusual. The Reds tend toward Purple or Orange, the Oranges are similar to Gold or Tan, the Greens are very dark, or Blue-Greens, and the Blues deep and rich. There are no Purples, and no pale colors of any group.

TABLE 28

TURBAN BAND COLORS

Specimen Number	Warps					Wefts
	Red-to-Orange	Orange-to-Yellow	Yellow-to-Green	Green-to-Blue-Green	Blue-Green-to-Blue	
170211d[1]	.....	8 H 10	24 J 11	.....	.....	24 J 11
170211d[2]	7 L 2	.....	.....	31 H 6	.....	7 L 2
170211d[3]	6 K 9	.....	.....	.....	39 E 8	6 K 9
170211d[4]	7 L 2	12 L 11	.....	.....	.....	7 L 2
170211d[5]	.....	12 L 8, 8 H 10	.....	.....	.....	8 H 10
171109b[1]	.....	8 H 10	24 J 11	.....	.....	8 H 10
171109b[2]	7 L 2	.....	.....	31 H 6	.....	31 H 6
171109b[3]	6 K 9	.....	.....	.....	39 E 8	6 K 9
171109b[4]	7 L 2	12 L 11	.....	.....	.....	7 L 2
171118f[2]	7 L 2	8 H 10	.....	.....	.....	7 L 2, 8 H 10
171124a	6 K 11	12 L 7	.....	.....	.....	31 H 6
171227a	6 K 11	.....	.....	31 H 2	.....	31 H 2
171227b	6 K 11	12 L 8	.....	.....	.....	12 L 8
171238b[1]	6 K 9	.....	.....	31 H 2	.....	6 K 9
171238b[2]	6 K 11	12 L 8	.....	.....	.....	12 L 8
171258a[1]	6 K 11	.....	.....	31 E 5†	.....	39 E 8(?)
171258a[2]	7 L 2	.....	.....	.....	39 E 8	7 L 2

† Warps originally 39 E 8(?) faded to 31 E 5.

PLAITED BANDS AND CORDS

The ancient Peruvians knew many different types of plaits, flat, round, and square. They knew, also, how to use few and many strands in their making, but until more study is made of the slings, especially, we shall have to conjecture that the main object in multiplying the number of strands was to strengthen the plait, and that the addition of colored strands was incidental. That is, in comparison with the variety of plaited fabrications in the collections, the ones that evidence interest in combining colors are definitely in the minority. One-color plaits are most common, two colors are much less often found, although typical of the 4-strand round braids. Three or more colored yarns in the same plait make it unusual. For that reason the two types of interlacing and plaiting already described for Majoro 170476d are important as showing this form of technical achievement in the Early Nazca period (Plate XLII*f*, *g*).

The turban bands illustrating plaited work as listed in the tabulation of band types (Table 29) total eleven. There are no square plaits in the collection. These seem to have been the particular contribution of the Late and Inca technicians. But there are flat and round plaits with the 3-strand flat, our own most common variety, represented by only three examples.[37] One of them is, however, the single example of a 5-color braid (171116b),

[37] Textile Periods, p. 33, footnote 20.

probably a fragment from some decorative detail. The colors are the familiar ones: Orange, Blue, Cream, Red, Green. The second 3-strand flat is the result of grouping 9 strands into 3's (171118f[1]), and the third example is suspect. The present 3-strand plait on specimen 170476f[1] was originally a 4-strand, in all probability, but lost its dark strand of wool through deterioration. It is represented in Plate XLI*b* as a 4-strand, to match the companion plait in the S-shaped appliquéd motive.

TABLE 29

PLAITED TURBAN BANDS: NUMBER AND COLOR OF STRANDS

Specimen number	Flat braids; number of strands	Round braids; number of strands	Strand colors
170211d[6]	8	..	Red
171109c	8	..	Red
171116b	3	..	Orange, Blue, Cream, Red, Green
171118f[1]	9, 3	..	Red
171118f[3]	..	4	Yellow, Brown†
171124b[1]	..	4	Red, Green
171124b[2]	..	4	Red
171124b[3]	..	4	Yellow, Brown
171124b[4]	..	4	Blue, Brown
171124c[1]	7	..	Yellow
171124c[2]	4	..	Yellow

† Yellow and Brown probably natural color of wools.

The 4-strand round plaits are almost invariably in two colors. One method of making is to place the two pairs of colors in order: Red, Red, Green, Green, in positions 4, 3, 2, 1 (Plate XLII*c*).

First step: Pass the active element in position 1 under strands in positions 2 and 3, and back over strand 3. The active element is now in position 2.

Second step: Pass the active element in position 4 under strands in positions 3 and 2, and back over strand 2. The active element is now in position 3. Repeat steps 1 and 2.

The 4-strand flat plait represents very simple interlacing: the outside right strand crosses its neighbor to the left; the outside left strand crosses its two neighbors to the right (Plates XLII*b*, LXVIII*a;* the latter is an unusual use of plaiting as a closing of a seam).

The 7-strand flat plait is also simple interlacing: the outside right strand always passes to the left under 2 strands, over 1, under 1, over 2 (Plate XLII*d*).

One type of 8-strand flat plait (specimen 170211d[6]) has a single active element, the outside right strand. Each strand as it succeeds to this outside position at the right, passes consistently over 2 strands, under 2, over 1, under 2, to become the left strand (Plate XLII*e*).

The 9-strand flat plait (specimen 171118f[2]) has two active elements, the outside right and the outside left strands. Each passes to the center, first the right one, under 2 strands, over 2 strands; and then the left active element, under 2 strands, over 2 strands, one of these last being the former right active strand (Plate XLII*h*).

WARP-TWINED FABRICATIONS

Small all-wool fragments, Majoro 170476c, e, represent a class of materials of which we have comparatively few examples. Twining is familiar as a basketry technique, but in basketry the weft elements are active. Weft twining has already been described in connection with the decorative yarn finishes on tunics 171217a and 171308 (Plate LX*b*). The loom with its warp yarn held in position does not lend itself to the construction of fabrics in which it is necessary to twist one warp yarn completely around another. Twining

is not to be confused with gauze weaving, which it resembles superficially. In the latter the active warp of the pair shifts from side to side, makes a half turn, but never encircles the passive warp.

But if the present Early Nazca collection contains only small fragments of bands in warp twining, it is probable that more and varied pieces will be made available for study at a later date. The technique was surely well known to the Early period weavers. A small group of fabrics from three Paracas Caverns graves furnishes two good examples.[38] Complete measurements can be given for Paracas Caverns specimen 8430. Held without stretching, it is about 52″ long by 22″ wide. The description as given in the Revista is as follows:

"There are two very heavy loomstrings at either end. This suggested that the two-ply wool yarns might have been stretched in some sort of frame. It was found possible to duplicate the effect although as in all reconstructing of old techniques it is impossible to state with certainty that the method used duplicates the ancient method of fabrication.

"In the twining technique, pairs of warps work together, separating to form units of a new pair, and, in this particular type of twining, coming back to their original position after a set number of twists (fig. 33). Any twist of one yarn about another at one end of a group of yarns held in a definite relation to each other, is duplicated in reverse at the opposite end. Since this is so, two meshes in the fabric are built up with each set of twining motions, and the actual work need progress only to the mid-point of the piece. At this point the problem is to keep the whole web from loosening and untwisting to its original state of plain stretched warps. In both specimens, when the twining turns from each end had approached to within an inch of each other, the fastening of the twists was made secure by "chaining" the yarns from one side edge to the other. With the series of yarns still held taut, pair number one was extended over pair number two and number two was pulled through the loop formed; pair number two was extended over pair number three and those yarns pulled up through the loop, and so on. The effect is a ridge of chain loops through the center with the pattern and ground meshes diverging in opposite directions from the ridge."

To return to the Nazca fragments, specimen 170476e is the simpler of the two (Plate LIII*a*). It consists of pairs of dark Green (32 C 8) and Yellow (12 K 9) yarns in order, Yellow (1 pair), Green (4 pairs). The actual number of units, I should judge from a reconstruction of the technique, is not important except that sufficient must be provided for the desired width. The arrangement of units at the center is reversed as follows:

YY GG GG GG GG YY YY GG GG GG GG YY

The right-hand Yellow element always turns over the left-hand Yellow element, but in manipulating the two pairs of Green, the effect of counterpairing is given by twining the inside elements (2 and 3) away from the center and over the outside elements (1 and 4). Between each two turns of any single active pair anywhere in the piece a passive pair is enclosed. The chevron pattern is formed by the appearance and disappearance of the pairs of Yellow twining elements. How closely these twined yarns were set may be appreciated by the width of the bands, ¾″ complete.

Majoro specimen 170476c (Plate LIII*b*) requires a set-up of 52 pairs of Green, Yellow, and Red yarns in the following order:

G Y G Y G Y G Y G R R R R G Y G Y G Y G Y G R R R R—center

This brings us to the center of the ¾″ band, and to a reversal of the order of the yarns. There is nothing difficult about the actual manipulation of the strands in twining. Working

[38] Tejidos del Periodo Primitivo de Paracas, Revista del Museo Nacional, vol. 1, pp. 60–80, Lima, Peru, 1932.

with long strands of twining yarns probably necessitated winding the ends into small balls to keep them from tangling. Or perhaps the twining at one end of a band of stretched warps duplicated itself at the other end. The placing of the colors results automatically in the production of lozenge shapes if the twining itself is correctly done. That is, it is possible to form diamonds of Yellow and Green, one within the other, only if the active Green pair, for instance, is active only so far as is necessary to form the side of its own diamond. When a corner is reached, the active twining pair must become passive, must be enclosed within a pair of yarns of the contrasting color. The drawing shows the changes each pair of strands makes in producing lozenge shapes.

EMBROIDERED BANDS AND GARMENT FRAGMENTS

Cantayo 171049, a fragment 16″ long by 1⅛″ wide, was originally completely covered with rows of stem stitchery (Plate LVII*b*). The stitch is one of the simplest in the embroiderer's repertory, and is usually made without variations. If the thread is always kept either above the needle or below it, the surface of the embroidery takes on a twilled effect (Plate LX*g*). Specimen 171049 has stitches of uniform length, taken over 4 warps or wefts, or their equivalent, depending upon the direction of the line. Since the warp-weft count of the cotton foundation band is 38 x 24 per inch, the wool embroidery surfacing is of fine quality. The ground is an Orange-Red (6 H 10), the motives similar to catfish(?) in Khaki Yellow (13 J 7), Yellow-Green (15 H 4), and dark Green-Blue (40 E 3).

Cantayo fragment 171050 is also embroidered in stem stitchery which completely covers the cotton foundation (Plate LVII*d*). The work is even finer in this specimen than in the last due to the finer warp-weft count, 42 x 34 per inch. Lengths of stitches vary, floating as they do over 2, 3, and 4 foundation yarns. The ground is Rose Red (6 I 9). The design motives are block-S forms, about a half-inch high, and slanting at an angle of 45°. One complete repeat and a remnant of a second indicate a sequence of six colors: dark Green, Yellow, pale Green, Purple-Red, Yellow-Green, light Rose. Part of the second sequence has been lost in the deterioration of the wool yarns, but colors in the 3rd, 4th, 5th, and 6th places remain. Just beyond the solid embroidery on one long edge there is a line of small plant-like motives which give the effect of tabs. Each detail on these is made by a single stitch.

Cantayo specimen 171054 consists of very small and fragile bits of embroidered bands, probably neck or armscye trimmings. What is left of them shows that they are similar to the better-preserved pieces described above: a fine weave cotton foundation material, which also gauges the quality of the embroidery, since it was customary to count the yarns for the stitches by twos and fours; small design motives made up of spirals and circles (possibly a flower), and at least four colors counting the Black outlines to the motives. This specimen illustrates one of the stem stitch variations: the stitches on one row have been worked with the thread consistently thrown above the needle; in the next row, the thread was kept below the needle (Plate LX*f*). The counterpairing produces a very different effect from the usual twilled surface of solidly worked stem stitches.

The four specimen numbers, Cahuachi 171140a, b^{1-2}, c, cover from 90–100 small bits and shreds of embroidery, the largest of which measures 5¼″ by 2¾″, but they represent the finest stitchery in this Early Nazca collection. It is inevitable that they should remind one of the Paracas Necropolis embroideries both in their technical and design features, and an analysis of the fragments indicates the stylistic similarities between the embroideries from the two sites.

Although these embroidered bits are listed under 171140a, b^{1-2}, c, the four subdivisions will be treated as one since each contains a similar assortment of fragments. That is, frag-

nents in each of the four are wool embroidery on cotton foundation webs, and wool embroidery on wool foundation webs. The Paracas garments are also very often combinations of separately woven cotton and wool materials embroidered in the same designs. But these Cahuachi all-wool remnants represent a style different from any Paracas style with which I am familiar.

Dividing the fragments on the basis of foundation materials, we have evidence of two different garments, one Brownish-Black cotton with an embroidered border seamed to its edge, and the other White cotton with allover embroidery. There is a possibility, of course, that these two were originally parts of the same garment, but that seems unlikely.

The Brownish-Black cotton fragment, about 2½″ by 2″, is a plain weave, warp-face material with yarn count 88 x 30 per inch. To its side selvage is whipped a shred of a Red wool embroidered border. This border is composed of three narrow bands, each separately woven, embroidered, then seamed together (Plate LVII*a*). There is no doubt that the three parts were planned for this specific purpose, but why they should have been made separately is inexplicable. The two ¾″ bands are warp-face set-ups of Red and Black warps (count 48 x 30 per inch), the Black yarns making narrow stripes near the outer edges. The embroidered motives on these are germinating seeds, a familiar design element on Nazca pots and on Paracas Necropolis garments. The 1¼″ center band is plain weave Red wool (count 40 x 40 per inch) embroidered with a series of birds and monsters with protruding tongues. The stitchery is the very simple stem stitch with thread consistently kept below the needle. The surface has the usual twilled effect.

The group of fragments which seem to me to belong to a second garment or detail are equally well executed although a trifle coarser. This is due to the fact that the cotton foundation material, by contrast with the wool, has a yarn count of 32 x 32, and that stitches which float over four such yarns are of necessity longer than those that float over four smaller yarns in a cloth of higher count. The fragments suggest that the cotton garment was edged with tabs of at least three sizes and two types. The two larger sizes were 2″ deep by 2¼″ wide, and 1¼″ deep by 2″ wide. The colors and motives seem to be the same. Tabs like these may have been made on the side edges of a web by using a skeleton warp (Plate LXV*b*). The regular wefts might then have extended out and around the skeleton. They would in turn become warps upon which to weave the tabs, a method suggested in the drawing. Or the tabs may have been made on the regular warps. The Paracas weavers made tabs on the ends of webs by adapting the Kelim tapestry technique to this use (Plate LXV*b*). Neither of these suggestions has been entered in Basic Table 30. Dissection proves that the Cahuachi tabs have three side selvages. They are bound with 3-stitch needleknitting (Plate LXIII*e*).

The small tabs vary in size, but measure a little less than 1″ by ¾″. They are made of rows of buttonhole stitchery, 28 stitches by 28 courses per inch (Plate LXV*a*). The colors are the familiar embroidery and needleknitting colors: Reds (1 J 9 and 5 L 11), Brown (15 C 10), Greens (16 L 12, 23 E 5, 32 J 6), Blue (39 H 3). The Blacks are dark Greenish and Brownish-Blacks.

By contrast with the quantities of sumptuous embroideries from the Paracas Necropolis these scanty bits from Cahuachi make a poor showing. It is not reasonable to suppose, however, that they represent the only fine work from the region. No doubt the original garments from which specimens 171140a, b^{1-2}, c, came were unusual, but they need not be considered unique. Except for the joining together of the separately woven embroidered bands, which may indicate a weaver's personal preference, the basic materials, embroidery

techniques, quality of workmanship, coloring, and design motives approximate the elaborate style of the Paracas Necropolis garments.

CORDS

This name is arbitrarily given to three specimens: an example of 4-stitch tubular needleknitting, a 2-strand fragment of natural color maguey(?), and a flattened tubular piece made by an ingenious variation of a simple weaving technique.

The 2-strand cord (Cahuachi 171124d) is just such a fragment as might be found among the useful binding materials of many a modern Indian group. In making the Peruvian specimen, approximately 16 single plies were twisted together, then doubled. Doubling preserved the twist for each ply, and gave twice the strength to the cord.

The needleknitting fragment (Majoro 170476f[2]) was made in the same manner as has been described in the section on plain weave striped mantles with needleknitted edges (Plate LXV*c*). It consists of a core veneered with rows of stitchery which are worked round on round. In offering an analysis of the method of making the tail feathers and plant stalks of Cahuachi bird-flower fringes, the core was described as a twisted foundation strand of cotton. This extra element seemed necessary to furnish a little more body than a wool core of the same size could furnish. But, in the Majoro specimen, wool yarns of four colors are used alone. Each strand is active in its turn in forming the striped pattern, and while it is active the passive three serve as core.

The Majoro fragment is only about four inches long, but that length is sufficient to illustrate one of the most interesting features of Peruvian color use: the combination of an unbroken repetition of three colors—Green alternating with Red and Yellow—and a simple repetition of two unit sizes—½″ repeated twice and ⅛″ repeated twelve times. In the following, the repeated letters standing for the colors give an approximate effect of the result:

GGGG RRRR G Y G R G Y G R G Y G R GGGG YYYY G R G Y G R G Y G R G Y—repeat

The flattened tubular piece, Cahuachi 171180c, is a wool fragment 8½″ long by about ⅜″ wide. It is made of fine yarns, approximately 40 x 22 per inch. The weave is, for the most part, plain, although there are places in some of the design repeats where warp yarns float over two weft picks. The small rectangular motives suggest bird forms (Plate XL*e*). They are all alike, about an inch or more long, and appear on an Orange ground. The design areas in each rectangle are approximately the same, but the same colored yarns do not appear in adjacent motives nor do they appear in any two motives developing simultaneously on opposite flat sides of the tubular cord.

The reconstruction from which Plate XL*d* was drawn does not pretend to duplicate the actual area shapes of any of the partly deteriorated motives in the specimen. It demonstrates the technique by which such motives could have been woven. The warp set-up included 8 Orange yarns for each rounded edge, and 12 for each flat side, 40 in all. Then, to judge from appearances, there were 24 of each of the colored yarns used in the motives: Cream, Rose, Blue, Black. These 136 warps must all have been held taut and kept crowded together. A continuous Orange weft yarn wove over one, under one, spirally, enclosing the whole warp group. In reconstructing the piece I brought to the surface all the Orange warps and passed the weft under and over them alternately as in plain weave. Two such rounds of the weft made the solid color Orange bar between each two motive rectangles. In the Majoro specimen, each color area is outlined with Black. The drawing of the reconstruction does not show any outlines, but simply how by leaving the Orange yarns down,

any other desired warp color could be brought up from the encircled group to appear on the surface for as few or as many of the picks of the weft as was desired. Red seems to be part of each design motive, exchanging places from one flat side of the tube to the other with Blue and Cream. There is nothing complicated or difficult about the technique itself, but as Crawford has said, "of all weaving tricks tubular weaving seems the most unlikely for the primitive craftsman to stumble upon. Today the most common example of this class is the pillow slip. Yet in the Peruvian collection . . . we find a narrow tubular ribbon in which the warps of great variety of color produce design. In order to make the texture solid the colors on one side have been drawn through to make designs on the other. This is an application of the principle of double cloth weaving."[39]

SLINGS

Cahuachi specimens 171289a–g are slings and fragments of slings combining maguey and cotton. There are an intact specimen (Plate XLVIII*a*), 2 more or less complete specimens bound together with their own cords, 2 intact maguey centers and 2 fragmentary centers, a finger loop and cord. Total: 3 slings; 4 identifiable center fragments. The remnants evidence that the slings were all practically alike in appearance. The 7″ centers consist of two flat plaits of maguey fibers brought to a point at each end by a wrapping of 2-ply cotton cord. Stout 3-ply cotton cords about ⅛″ in diameter were also included in the wrappings. One of these 2- or 3-ply cords ends in a plaited finger loop of Blue, Yellow, and White wool yarns. The other cord ends in a flat plait "handle" of cotton. The three specimens on which these parts are intact are wound around with their own cords.

Technically speaking, the slings are simple. The central, maguey portion is plaited by a method which can use any even number of strands (Plate XLVIII*c*). Whatever the number chosen the strands are divided into two equal groups. The outside right strand crosses all of its group to the center; the outside left strand crosses all of its group, and also the former outside right strand. These two movements alternate without change. The result is a smooth plait over a core which is thin or thick according to the number and size of strands chosen. The center plaits of all the sling fragments are about ½″ wide by ⅛″–¼″ thick.

The finger loop by which the sling was held upon release of the stone is a flat braid ¾″ wide. The loops on the two intact slings are alike in being bound to the ends of the hard 3-ply cords by wrapping, perhaps with the single plies of the cords themselves. The color effect of the loops—dissection of the specimens did not seem justified—can be gained by plaiting 32 strands with colors in the following order: 1–1–2–2–1–1–3–3–1–1–2–2–1–1–3–3, and reverse.

The series of crosswise herringbone stripes is made by working alternately first with the outside right, then with the outside left strands: right over four strands, under three; left over four strands, under four, including the former right strand. The effect is similar to that shown in Plate XLII*f*.

The "handle" on one of the bound slings (171289a) seems to be of considerable length. It is formed of a thick group of long cotton yarns held by its center in the twist made by doubling the end cord (Plate XLVIII*b*). The cotton yarns are then plaited into a 4-strand round plait as described in the section on turban bands and shown in Plate XLII*c*.[40]

Cahuachi 171314 is a sling entirely different in type from the maguey-cotton slings (Plate XLVIII*d*). It is incomplete, without a hint of the lengths or forms of end finishes,

[39] M. D. C. Crawford, Peruvian Textiles, Amer. Mus. Nat. Hist., Anthr. Papers, vol. 12, p. 95, 1915.

[40] Compare with maguey sling from the Early period at Paracas, described and pictured by E. Yacovleff and J. C. Muelle, Revista del Museo Nacional, vol. I, p. 48.

but a change in the color of the yarns at one end indicates that there was a finish. The length, originally, was over 60″, but how much over depends upon whether the two smaller fragments are parts of one end or two.

Specimen 171314 is made of all-wool yarns, natural light Cream and dark Brown, probably llama wool, and dyed Yellow and Red. The center is in Kelim tapestry technique too fine in quality for the rope-like ends. The design is geometric, a series of hollow squares with stepped frames set diamond-wise, the spaces between them spanned by bars of the same Yellow. Where all the warps are constricted near the ends, the weave changes to plain striped tapestry.

These same center portion warps are merged with the active elements in forming the rope-like ends. The technique used is called wrapped weaving, a term taken over from basketry.[41] In the sling each warp element makes a single turn around a spiralling weft element by going down on the far side of the weft, and coming up on the near side. The same technique with change in the number of yarns or strands passed over is the stem stitch of embroidery already referred to many times. The semi-realistic serpent design on this sling is given added interest by the manner in which the dark and light blocks spiral around the rope. The smaller ends of the ropes are done in the same technique but the motive is simplified to zigzag lines. Remnants of Yellow and Red yarns on one fragment end suggest tassels or deep fringe.

NETTING

Two netted specimens, Cahuachi 171118g and 171118h, illustrate the two simplest methods of constructing this type of fabric: knotless netting, or half-hitching, the coil without foundation of basketry; and the netting with simple or finger knot (Plate LXV*g*, *h*). The meshes in both specimens are about ½″ square. The cord used is a coarse cotton. Specimen 171118h is made of 2-ply white cotton, each ply formed of many smaller yarns.

FEATHER BANDS

A single specimen (Cantayo 171071c) illustrates the use of feathers in Early Nazca times. The condition of the material is bad, the cloth is charred, and the feather bands in bits, but something of the quality of the garment upon which the bands were sewn is indicated by the warp-weft count, 40 x 40 per inch. The yarn is 2-ply white cotton, and the weave plain.

The bright Yellow feathers are held by two strings knotted about them in exactly the same way as are the feathers on Late Ica specimens (Plate LXVI*b*). The band of feathers thus formed measures about an inch in depth and is applied to the garment material, sometimes making a solid color ground, at other times forming patterns. The Early Nazca specimen is too badly deteriorated to indicate the original plan of coloring.

WRAPPINGS

Two complete four-selvage pieces come under the classification of wrappings, the main points concerning which are entered in the following tabulation:

	Cahuachi 171306	Cahuachi 171312
Length	10′ 4″ (full)	8′ 9″ (full)
Width	36.5″+38.5″	30″
Weave and texture	plain; like canvas	plain; like crash
Warp-weft count	38 x 28; 44 x 32	22 x 20
Yarn composition	2-ply white cotton	2-ply white cotton
Loomstrings at ends	3-ply white cotton	4-ply (each 2-ply) Blue cotton

[41] O. T. Mason, Aboriginal American Basketry, U. S. Nat. Mus., Reports, 1902, pp. 230, 231, figs. 13, 14, 1904.

PADS

There are three specimens in the Early Nazca collection which seem best described as pads. Two of the covers, Cahuachi 171236 and 171279b, are about the size of the kerchiefs, and suggest an additional use for small squares or rectangles of material. The third (Cahuachi 171330) is a bag 10″ by 6″ in size (web 20″ [?] by 12″ [?] as woven), filled with loose cotton fibers. Coarse whipping stitches made with a doubled 2-ply cotton yarn close the edges (Plate XXXV*d*). The weave is plain, of 2-ply brown cotton, count 24 warps by 24 wefts per inch. The texture is similar to canvas.

Cahuachi specimens 171236 and 171279b come under the pattern weave classification. They are similar in technique to fragments allocated to the mantle group (Cahuachi 171218b and 171279a). Like the mantle fragments, these pad covers are plain weave plaided fabrics within which the weaver has developed patterns by warp and weft floats on the surface side. The set-up for pad 171279b consists of repeated units of warps: 6 Green, 2 White, 6 Green, etc. (Plate XLVI*a*). The colored wefts cross in exactly the same order, 6, 2, 6, etc. All the floats on the surface of the material are white. Those which extend horizontally are made by the White weft floating or flushing over the whole group of 6 Green warps at the proper intervals. The vertical White floats on the surface of the material are made by the Green wefts floating under the White warps at intervals. The particular intervals chosen by the weaver for specimen 171279b result in stepped diagonal lines (Plate XLVI*b*, *c*).

Specimen 171236 is simpler, technically, because the pattern area is small. Plate XLVI*e*, *f*, shows the four small crosses in the center, and the detail in Plate XLVI*d* gives the warp-weft interlacing. Three colors—White, Brown, and Pink—are set up as follows: 3 White, 4 Brown, 2 Pink, 4 Brown, 2 Pink, 3 Brown, 2 Pink, 4 Brown, 2 Pink, 4 Brown. Wherever lengthwise or crosswise lines are required to develop the motive shape, they are produced by floats brought up out of the background plain weave.

Both specimens are approximately square: Cahuachi 171236, 15½″ x 17″; Cahuachi 171279b, 15½″ x 15½″. The first one, fairly fine in texture, is folded over a small rectangular bat of loose cotton (Plate XXXV*b*, *c*). The bat is kept in place by knotting together the opposite diagonal corners. Cahuachi 171279b has small bits of cotton adhering to it as if the cotton had fallen out of place, but it is not folded or knotted.

STONE WOUND WITH STRING

Cantayo specimen 171071e is a stone wound around with cotton cord which possibly formed a protection for the hand, or allowed for a better grip. After the lateral strands were placed, crossing strands were put in which twined and half-hitched at their intersections with the first set. The cord used is 2-ply white cotton, hard twisted. Each of the two plies is composed of nine double-ply yarns, a total of thirty-six single yarns in the cord.

SUMMARY

GARMENTS

Garments of whatever size are composed of one or more rectangular pieces with selvages on all sides, proving that each web was woven on a separate set-up of warp yarns. The tunics were seamed under the arms, but the mantles, kerchiefs, and aprons were draped or tied on the wearer. There is no evidence from these Early Nazca specimens that any altering of the rectangular web was done by cutting, or that garments were woven to shape as we find them in Late periods. The smaller articles in the collection were doubtless accessories, ribbons, bands, and cords. They illustrate a variety of weaving and plaiting techniques (Table 27).

TEXTURES

These vary from filmy, gauze-like materials to heavy canvas-like fabrics. The former were occasionally woven with yarns so tightly spun that upon release from the maintained tension of the loom the webs contracted, resulting in a crêped surface. As a whole the specimens reveal expert handling of yarns. The edges are even, the number of wefts per inch is fairly consistent no matter where the count is made, and the final few inches of weaving are not noticeably looser than that in other areas. A good many of the specimens are similar to our muslins, a term which can be applied to a wide range of plain weave cotton cloths.

DECORATIVE FEATURES

Textile patterning is of two types: structural and superstructural. The first classification covers those decorations which develop during the fabrication of the web in the loom. When the web is taken from the beams, it is complete. Whatever embellishment is applied after its removal is classed as superstructural. Many of the Early Nazca textiles show decorative features applied subsequent to the weaving, often in addition to the structural features.

The structural type of decoration is found mainly in those weavings which incorporate colored yarns in their warps, or wefts, or both. The striped mantles, pattern weaves, tapestry, double cloth, and single-element fabrications are all examples. There is at least one structurally decorated specimen on each of the first twenty plates.

A type of decoration, literally superstructural because the pattern wefts are not functional to the basic web, is illustrated by the brocades (Plates XLIX–LII).

The superstructural decorations are mainly in the form of embroidery. Other types are too few to reckon with. Fringes, tassels, needleknitted cords and edge trimmings of the passementerie order, scallops, and various stitchery techniques still in use among embroiderers appear on the several garment types.

Design Elements.—These, as is to be expected, are governed partly by the imposed limitations of the chosen techniques. Usually, motives woven by primitive craftsmen are geometric motives. All the familiar elements, together with the characteristic stepped-fret (Plates XLI, LV), are represented in the collection. In addition, the pattern weave, considered difficult to manage, was nevertheless sufficiently developed in the Early Nazca period to use for curvilinear motives (Plate XLIII*e*).

Needleworked patterns show greatest range in form. The stylized bird and serpent(?) motives in specimen 171220 (Plate LII*c*, *d*), the human heads (Plate LXI*h*–*j*), and, most

realistic of all, the complex bird-flower fringe trimmings are characteristic of this period. Embroidery in Early Nazca is not heavy, except where used for edges. The mantles with warrior motives (Plate LVIII), flower motives (Plate LIX), and monsters (Plate XXXIX*d*) are patterned with solidly worked motives, but the techniques do not produce embroidery out of scale with the fabric weights.

COLORS

Colors in Early Nazca fabrics have been dealt with in detail. It is only necessary at this place to restate the fact that 190 separate hues were discovered through matching 350 yarn swatches to the printed samples in Maerz and Paul's Dictionary of Color. Even if half the colors found represent accidental results the range would be admirable. There does seem to have been a deliberate attempt to make medium and dark dyes in a majority of the colors. For instance, the two striped wool mantles (171262, 171265) are woven with two closely related Reds. A number of the embroidered pieces show a decided preference for Slate Blues and Reddish Purples. Since these colors are rare in Peruvian textiles as a whole, they can be regarded as criteria in placing textiles within the Early period.

Evidence of interest in color sequences is not lacking, but by comparison with that shown in textiles from the Paracas Necropolis, the interest at Nazca was less. Of the two examples of allover patterning, kerchief *9120 and flower mantle 171222, the latter is most nearly like the typical Paracas mantles. Not in technique nor in motive does the Cahuachi example resemble a Paracas one, but in the variety of colors and their arrangement (Plates LV*a*, LIX).

The needleknitted bird-flower specimens, although employing the largest number of colors, do not show sequences, although one of the simple fragments in the technique holds to a characteristic 1–2–1–3 order (170476f[2]). In later periods, needleknitting became formalized in use, and its color sequences were strictly maintained.

YARNS AND TECHNICAL PROCESSES

The summary statements regarding techniques common to all specimen types in the Early Nazca collection follow the order as given in Table 30.

YARNS

The Preliminary Report dealt with 117 Early specimens among which the all-cotton, all-wool, and cotton-wool combinations were in percentages as 34 : 34 : 32. The present study involves 163 specimens with the three groups in percentages as 31 : 36 : 33. Reasons for the difference in the number of specimens were given in the Introduction. The majority of those added by subdivision on a color basis were woven and plaited turban bands which fell in the all-wool category.

It is of interest to note that in only one woven specimen in the whole collection, the interlocking warp and weft patchwork fabric (171111), is the wool-cotton yarn combination visible. The plaited slings (specimens 171289a–g) also show the two types of yarns as well as maguey. Cotton foundation materials, either woven as tapes or needlemade in the desired shapes, are assumed for all the needleknitted specimens. Decorative garment features such as woven motives or embroidered edge trimmings are almost invariably wool, regardless of the yarns forming the basic web to which they are applied.

WARP-WEFT TECHNIQUES

Five of the eight standard weaves known to modern weaving were known to the Early Nazcans: plain with tapestry and interlocking variations, double cloth, pattern weave of

several varieties, gauze, and brocade, herein classed as a superstructural technique. In addition they did wrapped weaving, as it is known in basketry. What they do not seem to have done is twilling, satin, and pile weaves. The first technique is exceedingly rare among the coastal textiles of any period or locality, the second was apparently unknown in prehistoric Peru, and pile weave was never common even in Late times.

Plain Weaves.—Seventy per cent of the total Early Nazca specimens are as a whole or in part examples of simple over one and under one interlacing. This includes the four patchwork specimens, but not the tapestries which differ outwardly from other plain weaves in that the warp yarns are completely hidden by the weft. Were the tapestries to be included, the plain weaves would total 126, 77 per cent of the entire group.

Interlocking warps and wefts as found in the patchworks are a complex form of plain weaving. They evidence an unusually ambitious variant of an essentially simple weave.

Tapestry.—Only twelve specimens out of 163 are in tapestry technique, and of these few only two are characteristic. Technically, specimens 171117, 171125, and 171265 are tapestries although only three or four warps are involved in the portion giving the pieces that classification. But ribbon 170465e (Plate XXXVIII*b*) is a true example, as is also tunic sleeve decoration 171217a and the center of sling 171314 (Plates XXXVIII*d*, XLVIII*d*). These show full knowledge of the possibilities of the technique. The sleeve decoration illustrates monochrome, Kelim, eccentric, and figure-8 tapestry sub-types.

Double Cloth.—The example, fragment 170476d, has been described in full (Plate XLII*a*). It was made according to a method familiar in present times.

Pattern Weaves.—These are well represented. Two varieties of single-face, and two of double-face are described both in connection with the specimens and in the Glossary. The technique is clear from the flat-view diagrams (Plates XLIII–XLVII).

The main point about the Early pattern weaves is that they illustrate, with one exception, the development of warp-float motives by warp manipulation. To this degree they somewhat resemble satins. The exception, specimen 171119, has a figure made by means of weft manipulation, which analysts consider a comparatively simple method of producing pattern comparable to weft pattern brocades. When warp patterns are woven, the whole motive must be envisaged to a degree quite unnecessary in developing weft patterns.

Wrapped Weave.—This technique is frequently found on the slings of the Late period. In the single specimen illustrating wrapped weave, the workmanship is as expertly done as if the technique were fully familiar to Early weavers (Plate XLVIII*d*).

Gauze Weave.—The specimens in the collection prove the technique to have continued unchanged from Early through Late periods (Plate XLI). The gauze weave is not found in many textiles, but where it is it forms small motives which give a lacy appearance to medium weight cotton fabrics. The Cahuachi gauze motives are simple stepped frets and rectangles.

SINGLE-ELEMENT TECHNIQUES

The most numerous group within this classification consists of the plaits. All the specimens are from ¼″–½″ wide with from 3 to 48 strands in their formation (Plates XLII, XLVIII). The majority are flat. Square braids, plentiful on Late period specimens, are conspicuously absent from the Early Nazca collection.

Other single-element techniques are shown in Plate LXV*g*, *h* (netting), and Plates LIII, LIV (twine-plaiting of the "lace" type).

SUPERSTRUCTURAL TECHNIQUES

This classification groups together fabrics in which the decorative features are additions to the basic structure. In the case of the fringes, it has seemed consistent to include two types, the unwoven warp and the extra length weft fringe, although the former is always a part of the set-up for the basic web, and the fringe on specimen 171308 which falls within the latter classification is also structural (Plate LXVI*a*, *d*).

Edge Finishes.—The assortment listed requires no new terminology except for needle-knitted cords, tabbed and fringed (Plate LXIV). Fringes, tassels, and scalloped edges are all familiar. The fringes are both short and long (¾″–6″), but usually short. The Early Nazca embroiderers were skilled in the three-dimensional bird-flower fringes, the "faces" of unknown use, bands veneered with needleknitting, and narrow bindings in the same technique. It seems to have been appropriate for any garment, mantle, tunic, kerchief, or apron. The finest examples are on the mantles.

STITCHERY

Seaming.—The various Early Nazca seaming stitches are simple ones in as common use today as in prehistoric times (Plate LXVII). The tunics are seamed up the sides, and narrow breadths are joined to make rectangles of the desired size. Aside from these uses, trimmings require fastening to edges. There is no example of patching, mending, or altering among the specimens in the collection.

Embroidery.—Needleknitting, to which many references have been made, is the most characteristic decorative technique found among the Early Nazca textiles (Plates LXI–LXIII). Stem stitch embroidery of the quality found in such abundance on the Paracas cloths is scarce. That on the very fragile fragments 171140a–c (Plate LVII) is finer than most Paracas work, as is also that on specimen 171033. Other embroidery is coarse (171218a, 171219a, 171220) (Plates L–LII).

By comparison with a like number of specimens from the Paracas Necropolis the Early Nazca specimens show a greater range of decorative techniques not dependent upon embroidery. The elaborate motives and solidly worked fields for motives so characteristic of the mantles of Paracas are only suggested by a few of the Cahuachi finds, those above mentioned together with 171049 and 171050 (Plate LVII*b*, *d*). Apparently the embroidery was undeveloped, or not accorded the extreme favor it enjoyed at Paracas.

DEVICES TO VARY EFFECT

Warp-face, Plain Weave.—Except in textiles for which the warp count is very much larger than the weft count, the effect of the difference between warp and weft counts on the cloth structure is not particularly noticeable. In extreme cases, however, warp-face materials lacking selvages can be confused with tapestries. For the latter, there is one sure criterion: pattern. Tapestries are rarely woven with striped bands except to provide zone boundaries for the main motives, whereas warp-face materials are usually striped. Of the 78 warp-face materials 35 or 45 per cent come under this classification, and the proportion of warp-face plain weave fabrics among the striped specimens is even larger, 70 per cent. That the patterning furnished by colored warp yarns is varied is proved by Plates XXXVI and XXXVII.

Plaided materials are comparatively few, and of the eleven listed in the table under color changes for cross stripes, four are plaids plus pattern weave: 171218b; 171236; 171279a, b (Plates XLV–XLVII).

The single fabric with colored weft stripes only is 171305c (Plate XXXVII*j*). That simple method of introducing color seems never to have been practiced to any extent by Peruvian weavers.

SINGLE ELEMENT MANIPULATION

Except for the patterns made by colored strands in the plaits, examples of single-element manipulation are few. The interlocking of embroidery yarns on the reverse side of a piece was found in only two pieces (specimens 171218a, 171219a, 171220 are parts of the same mantle), but the device was known to the Paracas embroiderers (Plate LXVIII*e*). Presumably the technique would be more often found among fabrics in a larger collection.

TABLE 30

BASIC TABLE: FREQUENCIES OF PROCESSES IN THE FIELD MUSEUM COLLECTION OF EARLY NAZCA TEXTILES

	No. prelim. rept.	No. pres. study
Number of specimens	117	163†
Yarns:		
Cotton only	40	50
*9056; 170211h, i; 170413a, b; 170462a; 170465b, c, d; 170476a, b; 170677a, b; 171055; 171071a[1-2], c, e; 171110; 171118a, d, g, h; 171124d;‡ 171141; 171182a, b; 171183; 171213; 171214; 171217b[1-2]; 171218b; 171219b; 171236; 171238a; 171267a; 171279a, b; 171289a–e;‡ 171305a, b; 171306; 171311; 171312; 171330		
Wool only	40	59
*8537; 170211c[1-2], d[1-6], e, f, g; 170476c, d, e, f[1-2]; 170665; 171033; 171109a[1-2], b[1-4], c; 171116b; 171118b, c, e, f[1-3]; 171124a, b[1-4], c[1-2]; 171140a, b[2]; 171180c, d; 171217a; 171225; 171227a, b; 171238b[1-2]; 171258a[1-2], b; 171262; 171265; 171280; 171308; 171310; 171314		
Cotton and wool	37	54
*9058; *9120; 170211a, b; 170462b; 170465a, e; 171045; 171049; 171050; 171054; 171059; 171071b, d; 171111; 171112; 171113; 171114; 171115; 171116a; 171117; 171119; 171125; 171140b[1], c; 171180a, b[1-2]; 171181; 171215; 171216; 171218a; 171219a; 171220; 171221; 171222; 171223a, b; 171224; 171226; 171237; 171266a, b; 171267a; 171289f, g;‡ 171305c; 171309; 171321a, b[1-5]		
Warp-weft techniques		
Plain weave, number of specimens¶	95	114
1. 1 warp, 1 weft	91	110
*9056; *9120; 170211b, c[1-2], d[1-5], f, g, h, i; 170413a, b; 170462a, b; 170465a, b, c, d; 170476a, b, f[1]; 170665; 170677a, b; 171033; 171045; 171049; 171050; 171054; 171055; 171059; 171071a[1-2], b, c, d; 171109b[1-4]; 171110; 171112; 171118a, c, d, e, f[2]; 171119; 171124a; 171140a, b[1-2], c; 171141; 171180d; 171181; 171182a, b; 171183; 171213; 171214; 171215; 171216; 171217a, b[1-2]; 171218a, b; 171219a, b; 171220; 171221; 171222; 171223a, b; 171224; 171225; 171226; 171227a, b; 171236; 171237; 171238a, b[1-2]; 171258a[1-2], b; 171262; 171265; 171266a, b; 171267a, b; 171279a, b; 171280; 171305a, b, c; 171306; 171308; 171310; 171311; 171312; 171330		
1a. 2 warps, 1 weft	††	...
1b. 1 warp, 2 wefts	...	...
1+. Interlocking warps, wefts	4	4
170211e; 171111; 171221;** 171308		
Basket type	...	...

† The difference in the two totals is mainly due to giving individual numbers to specimens technically identical, but different in quality or color. They may be recognized by the letters and superior figures.

‡ Specimen contains maguey fiber.

¶ Frequencies of subvarieties of a process may total higher than the figure given for the process, because of co-occurrences in one specimen of several subvarieties.

†† The blanks indicate the non-occurrence of techniques found in textiles of the Middle and Late periods.

** Interlocking wefts only.

TABLE 30 (*continued*)

Tapestry, number of specimens¶	12	12
Monochrome 171117; 171119; 171217a; 171265	4	4
Kelim 170465e; 171217a; 171225; 171308; 171314	5	5
Eccentric 170465e; 171217a; 171308	3	3
Interlocking weft 171125	1?	1
Underfloat weft	...	...
Single warps wound 171225	1	1
Figure 8 171045; 171180b[2]; 171217a	3	3
Twill types	...	...
Double cloth	1	1
2 warps, 2 wefts; variants 170476d	1	1
2 warps, 1 weft	...	...
Pattern weave, number of specimens	12	10
Single-face, underfloat warps 171059; 171118e; 171180c; 171226	4	4
Single-face warp and weft floats 171218b; 171236; 171279a, b	...	4
Double-face, 1 warp, 2 wefts 171119	5	1
Double-face, 2 warps, 1 weft 170476f[1]	3	1
Wrapped weave	1	1
Single weft 171314	1	1
Multiple weft	...	...
Gauze weave 170476f[1]; 171110; 171141	3	3
Single-element techniques		
Half-hitching, coil without foundation 171071e; 171118g	2	2
Netting, with knots 171118h	1	1
Knitting	25	||
Plaiting: braids, number of specimens¶	9	15
Round 171118f[3]; 171124b[1-4]; 171289a	3	6
Flat 170211d[6]; 170476d, f[1] (2); 171109c; 171116b; 171118f[1] (2); 171124c[1-2]; 171217a; 171289a	11	12
Square	...	...
Plaited finish of warps, basketry type	...	...
Twine-plaiting, "lace" *8537; 170476c, d, e	6	4
Weave-plaiting, cords	1	...

¶ Frequencies of subvarieties of a process may total higher than the figure given for the process, because of co-occurrences in one specimen of several subvarieties.

|| Reclassified under needleknitting embroidery.

TABLE 30 (*continued*)

Superstructural techniques		
Brocade, number of specimens	3	3
Single-face	...	...
Double-face (or embroidery)	3	3
171218a; 171219a; 171220		
Edge finishes, number of specimens¶	16	45
Fringes		
Applied, needlemade	7	6
171033; 171071d; 171117; 171180d; 171265; 171309		
Applied, extra length weft to skeleton warp	4	5
171118b; 171217a; 171262; 171266b; 171308		
Warps left unwoven	6	6
170211f; 171217a; 171225; 171226; 171266b; 171308		
Tassels	3	2
*9120; 171314		
Needleknitted cords, tabbed and fringed	...	4
171033;‡‡ 171125; 171262; 171265		
Needleknitting, 3-dimensional edge trims, etc.	11	11
*9058; 170211a; 171112; 171113; 171114; 171180a, b[1-2]; 171215; 171223a, b; 171224; 171237		
Tabs	5	7
Woven	5	2
171140b[1-2]		
Needlemade	...	6
170211b; 171071b; 171116a; 171140c; 171180d; 171309		
Scallops: needlemade; woven	...	3
171045; 171109a[1-2]		
Stitchery		
Seaming, number of specimens¶	...	27
Whipping; zigzag; "sham" hem stitch	26	22
170211f; 170462b; 170476f[1]; 170677a, b; 171033; 171059; 171125; 171140c; 171214; 171217a; 171224; 171226; 171237; 171262; 171265; 171266a, b; 171280; 171305a; 171308; 171330		
Saddler's, lacing	2	5
171119; 171217a; 171262; 171308; 171310		
Running	4	2
170465c; 171306		
Hemming	...	2
171215; 171266b		
Wrapping of core	...	...
"Warps" added to edge	2	2
171033; 171045		
Embroidery, number of specimens¶	25	48
Blanket stitch	...	1
171266b		
Stem, outline	12	15
170465a; 171033; 171045; 171049; 171050; 171054; 171140a, b[1-2], c; 171180d; 171218a; 171219a; 171220; 171266b		
Needleknitting	3	36
*9058; 170211a, b; 170476f[2]; 171033; 171071b, d; 171112; 171113; 171114; 171115; 171116a; 171117; 171125; 171140b[1-2], c; 171180a, b[1-2]; 171181; 171215; 171223a, b; 171224; 171237; 171262; 171265; 171267b; 171309; 171321a, b[1-5]		
Couching	...	...
Chain	3	...

¶ Frequencies of subvarieties of a process may total higher than the figure given for the process, because of co-occurrences in one specimen of several subvarieties.

‡‡ Similar to others in the group in effect; center an embroidered band.

TABLE 30 (*continued*)

Figure 8	...	...
Seaming stitches for embroidery	7	4
Double running *9120; 170465a; 171216	...	3
Tent hemming 171222	...	1
Twined stitches 171266a	...	1
Devices to vary effect		
Yarn spinning		
Slack twist	...	...
Crêpe twist 170413a; 170476a, b; 170677a, b; 171182a; 171237; 171262; 171265; 171305c	9	10
Two tone 170211c[1-2]	...	2
Structural, set-up of loom		
Warp face, plain weave *9056; *9120; 170211b, d[1-5], f, g; 170413a, b; 170462a, b; 170465a, b, c, d; 170476a, b; 170665; 170677a, b; 171033; 171049; 171050; 171055; 171059; 171071a[2], b, d; 171109b[1-4]; 171110; 171112; 171118a, c, e, f[2]; 171124a; 171140b[2], c; 171180d; 171183; 171213; 171215; 171217a, b[2]; 171218a; 171219b; 171220; 171222; 171223a, b; 171225; 171227a, b; 171236; 171237; 171238b[1-2]; 171258a[1-2], b; 171262; 171266a, b; 171267a; 171279b; 171280; 171305a, b; 171306; 171308; 171310; 171311	25	78
Drawing in for stripes, patterns 170211c[1-2], d[1-5], e; 170462b; 170465b, d; 170476d, f[1]; 170665; 171033; 171059; 171071a[1]; 171109b[1-4]; 171111; 171118e, f[2]; 171124a; 171140b[2]; 171180c; 171183; 171218b; 171224; 171225; 171226; 171227a, b; 171236; 171238b[1-2]; 171258a[1-2], b; 171262; 171265; 171279a, b; 171280; 171305b; 171308; 171310; 171311	34	49
Scaffolding weft for interlocking plain weave 170211e; 171111; 171308	2	3
Scaffolding weft for shaping web	...	...
Warp locking, end-to-end 170211e; 171111; 171308	3	3
Tab formation 171140b[1-2]	5	2
Loom joining of widths 171224(?); 171262(?)	2	2?
Spaced warps 171224; 171225	3	2
Tubular construction 171180c	1	1
Warp element manipulation		
Crossing against slip 171119	...	1
Grouping for tapestry 171119; 171217a; 171308	...	3
Weft element manipulation		
Color changes for cross stripes 170211c[1-2], e; 171071a[1]; 171111; 171218b; 171236; 171279a, b; 171305c; 171311	8	11
Weft grouping, for size 171314	1	1
Weft lock, as in tapestry 170476d; 171221	2	2
Warp lock, as in tapestry	...	...

TABLE 30 (*continued*)

Warp-weft lock, as in tapestry 1 1
171125

Counterpairing of wefts 2
170211f; 171217a

"Facing" one color with another .....

Double set of weft, plain weave 3 2
171118f[2]; 171124a

Weaving techniques

Loose beating up 5 6
*9056; 170211c[1-2], h; 170476a, b

Weft-to-warp change 1 1
171225

Padding yarns introduced .....

Kelim slot for neck opening 2 3
171071b, d; 171266b

Single element manipulation

Three-dimensional knitting 11

Counterpairing in embroidery, twining 1 3
170476c, e; 171054

Interlocking of embroidery yarns 4
170465a; 171218a; 171219a; 171220

Plaiting element manipulation

Color variations in braids 11
170476d, f[1]; 171116b; 171118f[3]; 171124b[1-4]; 171217a; 171289f, g

Surface decoration

Painting 1 1
*9056

Tie-dyeing .....

Feathers, applied 1 2
171071c; 171266b

|| Reclassified under needleknitting embroidery.

CONCLUSIONS

We may conclude from the 163 specimens in the Early Nazca collection that the weavers of the period not only had and knew how to handle fine cotton and wool yarns, dyes, weaving, and stitchery techniques, but that they were familiar with the variety of possibilities offered by combinations. Although the examples are few in number, there are garments illustrating from one to fourteen techniques. Most of them are basic, yet many are adaptations to designs or uses. Very little of the workmanship is slovenly, and none of it gives the impression of being experimental. Even by today's standards of fineness and uniformity, yarns, weaves, and embroidery meet the test.

Table 30 weights a simple whipped seam equally with a complicated edge finish: each counts one. On that basis, many specimens are entered once, twice, or more times in the table. The fragmentary condition of a good part of the collection has been mentioned. This condition is undoubtedly responsible for the numbers of specimens falling in the groups of the fewest techniques, but it is not responsible for the great preponderance of plain weaves. As in all other Peruvian periods, the plain weave with its obvious color variations was a fundamental technique. Under single technique classification, plain weave is not first in frequency, because, in all likelihood, a rectangle with no decorative features was rare, and the fragments lack edges or corners showing the combinations made in the original garment.

Table 31 summarizes by numbers and percentages the material given in Table 30.

TABLE 31

RANGE OF TECHNOLOGICAL PROCESSES FOUND IN THE EARLY NAZCA SPECIMENS

Number of techniques represented in each specimen	Number of specimens		Per cent of collection	Number of techniques represented by all specimens in group	Number of specimens
1	33		20	9:	
				needleknitting	14
				plain weave	5
				plaiting	5
				various (6)	9
2	31		19	17:	
				plain weave+1 other technique	20
				plaiting+color variation	5
				various combinations of 2 techniques	6
3	47		29	22:	
				plain weave+warp face+stripes	21
				plain weave+warp face+stitchery	9
				various combinations of 3 techniques	17
4	18		11	23:	
				plain weave+warp face+2 techniques	15
				various combinations of 4 techniques	3
5	20		12	27:	
				plain weave+4 other techniques	17
				various combinations of 5 techniques	3
6	5		3	15:	5
		171119		plain weave+5 other techniques	
		171140b[1-2]			
		171140c			
		171224			
7	2		1	11:	2
		170476d		double cloth+6 other techniques	
		170476f[1]		plain weave+6 other techniques	
8	2		1	14:	2
		171225		plain weave+7 other techniques	
		171265			
9	1		0.6	9:	1
		171033		plain weave+8 other techniques	
10	2		1	15:	2
		171262		plain weave+9 other techniques	
		171266b			
13	1		0.6	13	1
		171308			
14	1		0.6	14	1
		171217a			
Totals	163				163

GLOSSARY OF TERMS WITH DIRECT APPLICATION TO THE EARLY NAZCA COLLECTION

Apron: a rectangular web with strings or ties from the corners (Plate XXXIV*a*).

Batten (also called sword): the shaped piece of wood by means of which the shed is kept open for the weft yarn, and each inserted weft is driven down to the partially woven web. The word is both noun and verb.

Blanket stitch (also called coil without foundation, half-hitching, and buttonhole stitch): an embroidery stitch used for protecting or reinforcing edges (Plate LX*a*). Used in Early Nazca textiles for foundations under needleknitting veneer, and for tabs (Plates LXIII*g*, LXV*a*).

Brocade: a form of superstructural patterning in which supplementary yarns develop design motives by means of floats. The extra yarns usually alternate with the basic yarns of the fabric. In double-face brocading the pattern floats are as important for the reverse side as for the surface side. Brocaded materials are often indistinguishable from embroideries (Plates L–LII).

Buttonhole stitch: see *Blanket stitch.*

Count: the number of warp and weft yarns per unit of measurement, the inch. For closely woven materials, count indicates the quality of the fabric.

Counterpairing: in twining or weaving, the turning of the two elements of adjacent pairs toward or away from each other, thereby forming a plaited effect (Plates LIII*a*, LX*b*); in stem stitch embroidery, the throwing of the thread first above and then below the needle on alternate stitches (Plate LX*f*).

Crepe twist: an extra amount of twist given in yarn spinning, which results in a pebbly surface of the woven fabric upon release from the loom.

Crossing against slip: the exchanging of the regular positions of the warp yarns with neighboring warps to insure keeping in place the last wefts put across the web; usually done between plain weaving and a tapestry border (Plate LXVIII*c*).

Double cloth: a reversible fabric requiring two sets of warps arranged one above the other, each with its own weft. Ordinarily, the sets are of different colors. To make the pattern, certain reverse-side warps are raised to replace surface-side warps which are lowered. Colors are exchanged, and ties are formed between otherwise separate portions of the fabric. Since each set of warps, no matter what its position, is crossed only by its own weft of the same color, strongly contrasted design areas are produced (Plate XLII*a*).

Double running stitch (also called punto scrito): an embroidery stitch in which the material passed over by the needle on the first line of running stitches is covered by a second line (Plate LX*c*, *h*, *i*).

Double set of wefts: two wefts enter the shed from opposite sides, and cross each other in the shed (Plate XL*a*).

Drawing in for stripes, patterns: setting up the loom with colored warp yarns (Plates XXXVI, XXXVII).

Finger knot: the simplest knot which may be tied with a single element; it gets its name from the method of turning the element around the left forefinger in order to make a loop (Plate LXV*h*).

Float: a warp or weft yarn free for a distance upon the surface of the fabric. Patterns are built up by means of floats.

Fringes: extra lengths of wefts. Most fringes have plain-weave tape-like headings from 2–5 warps wide. The fringe proper is the extra length of weft which turns about a skeleton warp set the desired distance from the other warps. Upon completion of the weaving, the skeleton warp is withdrawn, leaving tightly twisted weft loops. A similar fringe is made by the extension of the regular weft to a scaffold yarn (Plate LXVI*d*).

Needlemade. The Nazca and Paracas types are similar: loops made by drawing an extra yarn through whipping stitches on the edge of the garment are twisted tightly into a fringe (Plate LXVI*c*).

Unwoven warp lengths. See Plate LXVI*a*.

Gauze weave: manipulation of certain warps by drawing 1 and 3 over 2 and 4, and securing the cross with a passage of the regular weft to produce the effect of openwork. The Peruvian gauze is used in combination with plain weave (Plate XLI*a–c*).

Half-hitching: see *Blanket stitch.* Plate LXV*g* shows use in netting.

Heddle: a device for separating the warps into what are called sheds for the insertion of weft. The primitive heddle, also called heald, is a rod from which string loops depend to encircle alternate warps. When the rod is drawn up, the odd or even warps are separated from the other half of the set-up.

Hemming stitch: a seaming stitch used for fastening down edges (Plate LXVII*h*).

Interlocking: embroidery yarns. A method by which yarns of two colors, instead of building up their respective motives independent of each other, loop about each other at the common boundary line (Plate LXVIII*e*).

Warps and wefts. Multicolored patchwork constructed by means of skeleton warps and wefts around which the set-up yarns turn. The weaving is so accomplished that the scaffolding yarns are unnecessary upon completion of the fabric, since both basic sets interlock (Plates XXXIX*a, c*, LXVII*g*).

Warp-weft type. A technique normally found in tapestry. Two wefts interlock with each other, at the same time enclosing a warp (Plate LXIV*e*).

Weft yarns. A method by which color change is effected at the boundary of a design motive; normally found in tapestry (Plate XXXIX*b*).

Kelim slot: an opening of the desired length left between two adjacent warps by turning around them the weft yarns which come from opposite sides of the web (Plate LXVIII*g*).

Lacing stitch: see *Saddler's stitch.*

Loomjoin: done with an extra length of yarn independent of the weaving elements, which draws together a breadth of cloth already woven and a breadth on the loom by engaging corresponding weft turns on the adjacent edges (Plate LXVII*f*).

Loom strings: the first two, three, or more heavy wefts put across the warp yarns (Plate LXVI*a*).

Mantle: the largest rectangular garment found among the Early Nazca pieces; usually formed by joining two breadths of material. Patterned in the loom, embroidered, and edge-trimmed (Plate XXXIV*b*).

Needleknitting: a name given to the modern plaited cross stitch which is known to embroiderers in various parts of the world as Ceylon stitch, Portuguese stitch, etc. The Peruvian variety is identical to the modern stitch in method of making (Plates LXI–LXIII).

Needleknitted cords, tabbed and fringed: cords with tiny buttonhole stitch tabs on one side, fringes on the other (Plate LXIV).

Needleknitting, three-dimensional: flower and bird forms developed in the needleknitting technique over woven or blanket-stitch foundations (Plates LXI–LXIII).

Pattern weave: double-face, 1 warp, 2 wefts: design motives made by weft floats independent of the warp set-up. In these motives the bobbin carrying the decorative weft floats over and under groups of warps. The weave resembles brocading except for the fact that there are no alternating basic weft yarns in the pattern (Plate XLIII*b*).

Double-face, 2 warps, 1 weft: design developed by warp floats, a method of patterning dependent upon the colors set up for warps (Plate XLI*b*).

Single-face, underfloat warps: a fabric with design developed by the appearance of certain warps on the surface of the web; when these warps are not necessary to the pattern, they float on the reverse side (Plates XL*d, e*, XLIII*a, c–e*, XLIV*b*).

Single-face, warp and weft floats: a fabric with design dependent upon arrangement of colors in the set-up, and in their subsequent shedding. The latter accounts for the warp floats, and the weft floats are made by carrying the bobbin yarn over and under groups of warps (Plates XLIV*a*, XLVI*a–f*, XLVII).

Pick: one length of weft from side to side of a design motive (in tapestry), or of a breadth of fabric in the loom. The term is used both as a noun and as a verb meaning to insert the weft in the shed.

Plain weave: the interlacing of a single weft yarn over and under single warps.

Plaiting: synonymous with braiding.

Running stitch: the simplest of all seaming and embroidery stitches; identical to darning. Rarely found on Peruvian garments of any period (Plate LXVII*i*).

Saddler's stitch: a seaming stitch which laces the edges of two webs together without overlapping (Plate LXVII*c*).

Scaffolding yarns: warp or weft yarns forming temporary foundation elements for multicolored patchwork fabrics, end-to-end warp locking, and separately woven fringes and tabs (Plates XXXIX*a*, *c*, LXIV*a*, *c–e*, LXV*b*, LXVI*a*, *d*).

Scallops: needlemade: an edge finish formed by weaving over and under with the needle between the selvage and a loop of yarn made as required (Plate LXV*e*, *f*).

Woven: a unique form resulting from weaving narrow bands on two warps, the number of wefts indeterminate. In the Nazca example the wefts are carried over and under the two warps in the following order: 1-2-3-4-5-6*6-5-4-3-2-1 (Plate XL*c*, *f*).

Set-up: see *Warps*.

"Sham" hem stitch: a seaming stitch (Plate LXVII*d*).

Shed: the triangular space produced by raising alternate warps (in plain weaving), or groups of warps (in pattern weaving), by means of a heddle device. The weft is carried through this space from side to side of the web.

Skeleton yarns: see *Scaffolding yarns*.

Sling: various types both simple and elaborate are found in sites from the different Peruvian periods. Technologically, slings are alike in having slotted or net-like center portions, long plaited or wrapped-weave cords from each end, finger loops and tassels as finials for the cords (Plate XLVIII).

Square count: an equal number of warps and wefts per unit of measurement, the inch.

Stem stitch (also called crewel and outline stitch): a simple line embroidery stitch made similar to back stitch in seaming, wrapped weave in basketry, and Soumak stitch in rug work. Usually the work proceeds from left to right by entering the needle between the 4th and 5th yarns on the surface side, and bringing it up from the reverse side between the 2nd and 3rd yarns (Plate LX*d–g*). The quality of work, whether fine or coarse, is dependent upon the warp-weft count of the fabric. Most of the Peruvian stem stitch embroidery appears as solid filling for pattern motives.

Stock-dyed fibers: raw stock, usually wool, dyed before spinning it into yarn.

Superstructural techniques: those not functional to the making of the basic web. In brocade and embroidery the decorative yarns do not constitute an essential part of the structure.

Tabs: needlemade: blanket or buttonhole stitches worked row on row (Plate LXV*a*).

Woven: Plate LXV*b* suggests two types dependent upon scaffolding yarns. One type is made by an extension of the regular wefts which become warps; a second type is made by weaving upon warp loops leaving Kelim slots between adjacent tabs.

Tapestry: eccentric: a type in which warps and wefts interlace at angles other than right angles. Generally used to develop irregularly shaped design motives.

Figure-8: a type in which the weft interlaces as in plain weave with two single warps or two groups of warps (Plate LXIV*a*).

Kelim: a type distinguished by slots at the sides of pattern areas. The wefts of one color turn on an edge warp; those of the adjoining color turn on the adjacent warp. The length of the slot is governed by the size of the color area (Plates XXXVIII*a*, *d*, LXVIII*d*).

Monochrome: a plain weave in which wefts of one color are battened together so closely as to completely cover the warps.

Single warps wound: a method by which a very narrow line of color is produced. A single warp or a single warp group is wrapped closely with weft yarn (Plates XXXVIII*a*, LXVIII*d*).

Tent stitch: a slanting stitch used by the embroiderer to veneer single yarns of the basic material by winding variously colored threads about them (Plate LIX*b*).

Tunic: a sleeveless shirt formed of one or two breadths of material. An opening for the head is

left in the center seam, or provided for by a Kelim slot. The side edges are seamed to allow for medium size armscyes (Plate XXXIV*c–e*).

Turban bands: very narrow colored ribbons in weaving or plaiting techniques (Plate XL).

Twine-plaiting: "lace" constructed of pairs of yarns which twine about each other for distances dependent upon the design. Where two pairs meet to cross, each separates and plaits as in modern bobbin lace (Plates LIII, LIV).

Twined stitches: made with two weft yarns, or with yarns in needles as in true embroidery. The introduced strands twist a half turn about each other, enclosing groups of warps between each two intersections. This is the simplest two-strand twine (Plates LX*b*, LXVIII*a*).

Warp: the yarns stretched on the loom preparatory to weaving. The completed warp series is called the set-up.

Warp face: the appearance given to a fabric by a preponderance of warp yarns over the number of weft yarns per inch. Most of the striped materials in the Early Nazca collection are warp face.

Warps added to edge: devices by which elements were provided for weaving very small edge details (Plates LXIV*c*, LXV*e*).

Warp element manipulation: management of the warp yarns so as to form patterns by means of warp floats (Plates XLIII–XLVII).

Web: a textile fabric, especially one under construction on the loom.

Weft (also called woof, filling, pick): the yarn carried by a bobbin or shuttle from one side to the other across the warps in weaving.

Weft element manipulation: management of the weft yarns so as to form patterns by means of floats, as in darning. The majority of brocaded fabrics are examples of weft manipulation (Plates L–LII).

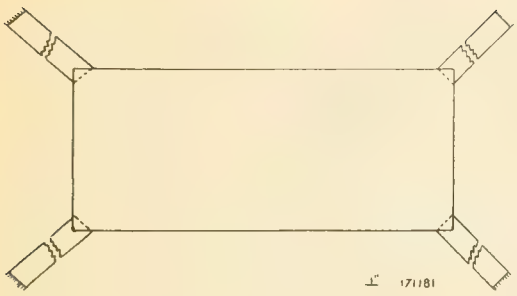
Weft face: the appearance given to a fabric by a preponderance of weft yarns over the number of warp yarns per inch. Tapestry is the most extreme example of a weft-face fabric.

Weft-to-warp change: presupposes a space in the warp set-up across which the regular weft was carried. Upon completion of the weaving, these bare wefts were woven upon (probably with needles as in other fine tapestry work) as if they were warps (Plates XXXVIII*a*, LXVIII*d*).

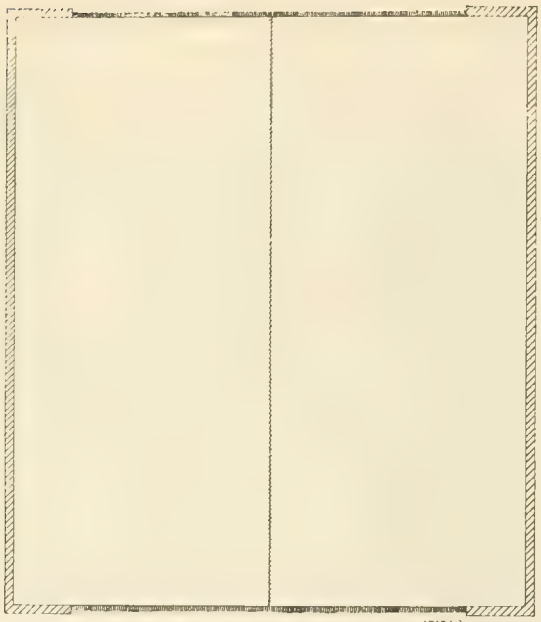
Whipping stitch: a very shallow wrapping stitch taken at right angles to two fabric edges. A whipped seam opens out flat. The stitch was most frequently used by the ancient weavers to fasten together separately woven or constructed parts of garments. In several specimens (possibly loom-joined) it is found taken between the first and second edge warps and through each of the corresponding weft turns on the two breadths. Probably, in those instances, the stitch drew the two edges together as in lacing (Plate LXVII*j*).

Wrapped weave (also called Soumak stitch): formed by carrying the weft element forward and once around a single warp at a time. Similar to stem stitchery which is done on fabric, in contrast to wrapping on bare warps (Plate XLVIII*d*, detail).

Zigzag stitch: a decorative seaming stitch with the advantage of strength. Plate LXVII*b* shows the method of making: the needle is brought out at A, is inserted at B, is brought out a second time at A; the needle is then inserted at C, is brought out at D, is again inserted at C, is brought out a second time at D, and repeat.



a



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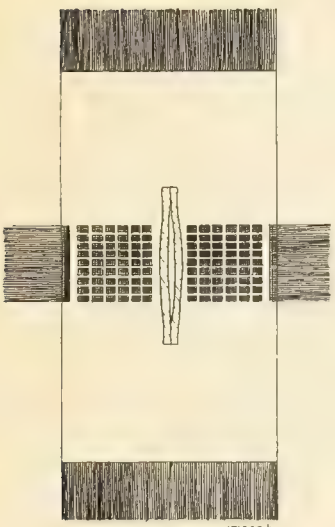
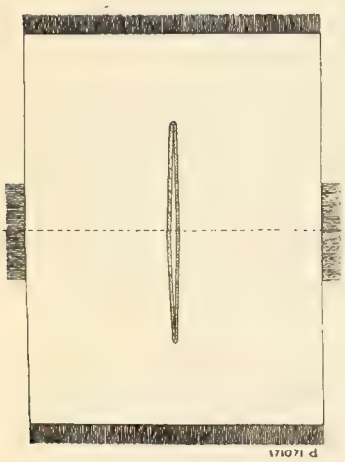
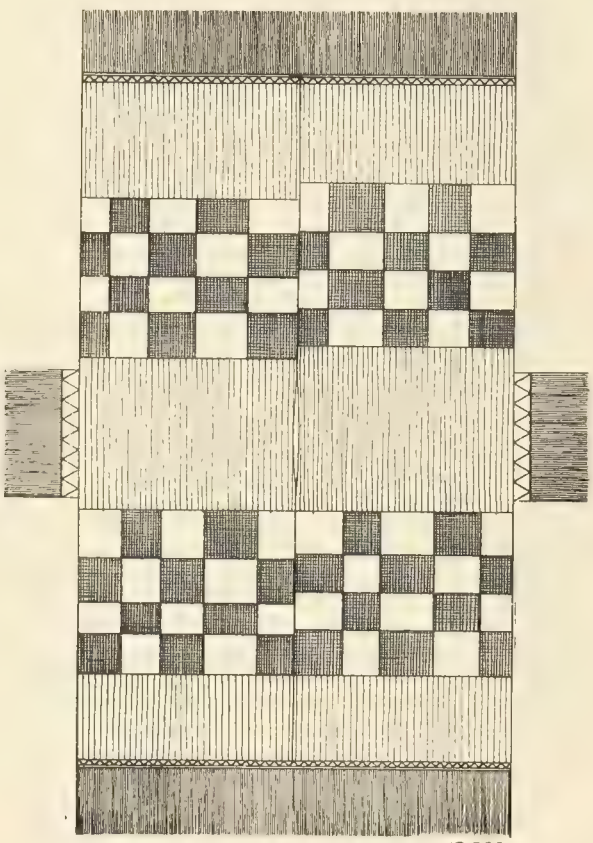


c

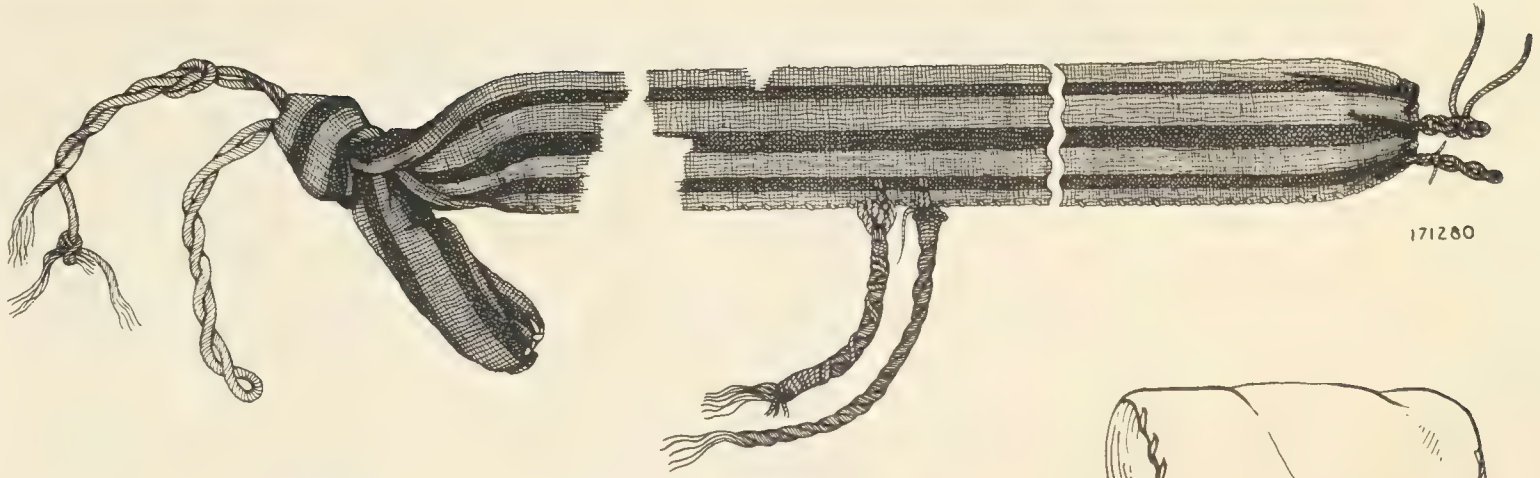


d



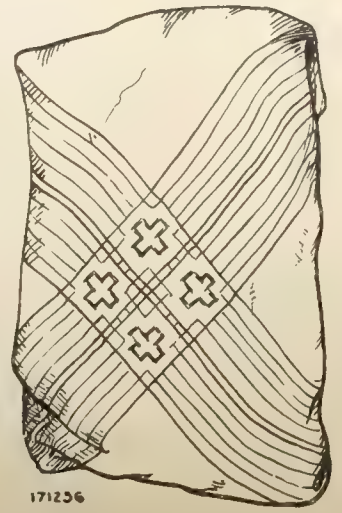
e

EARLY NAZCA PERIOD GARMENTS



a

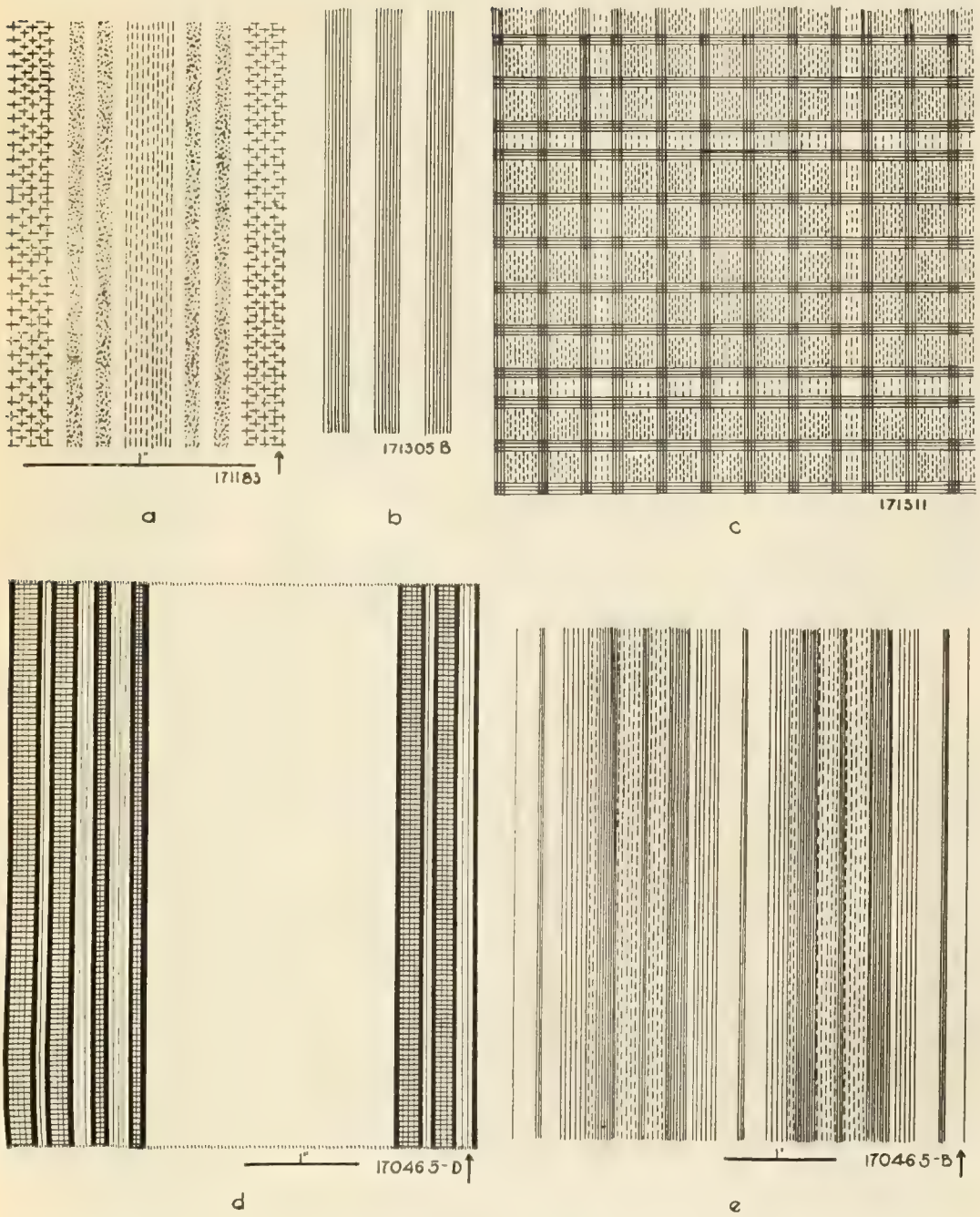
b



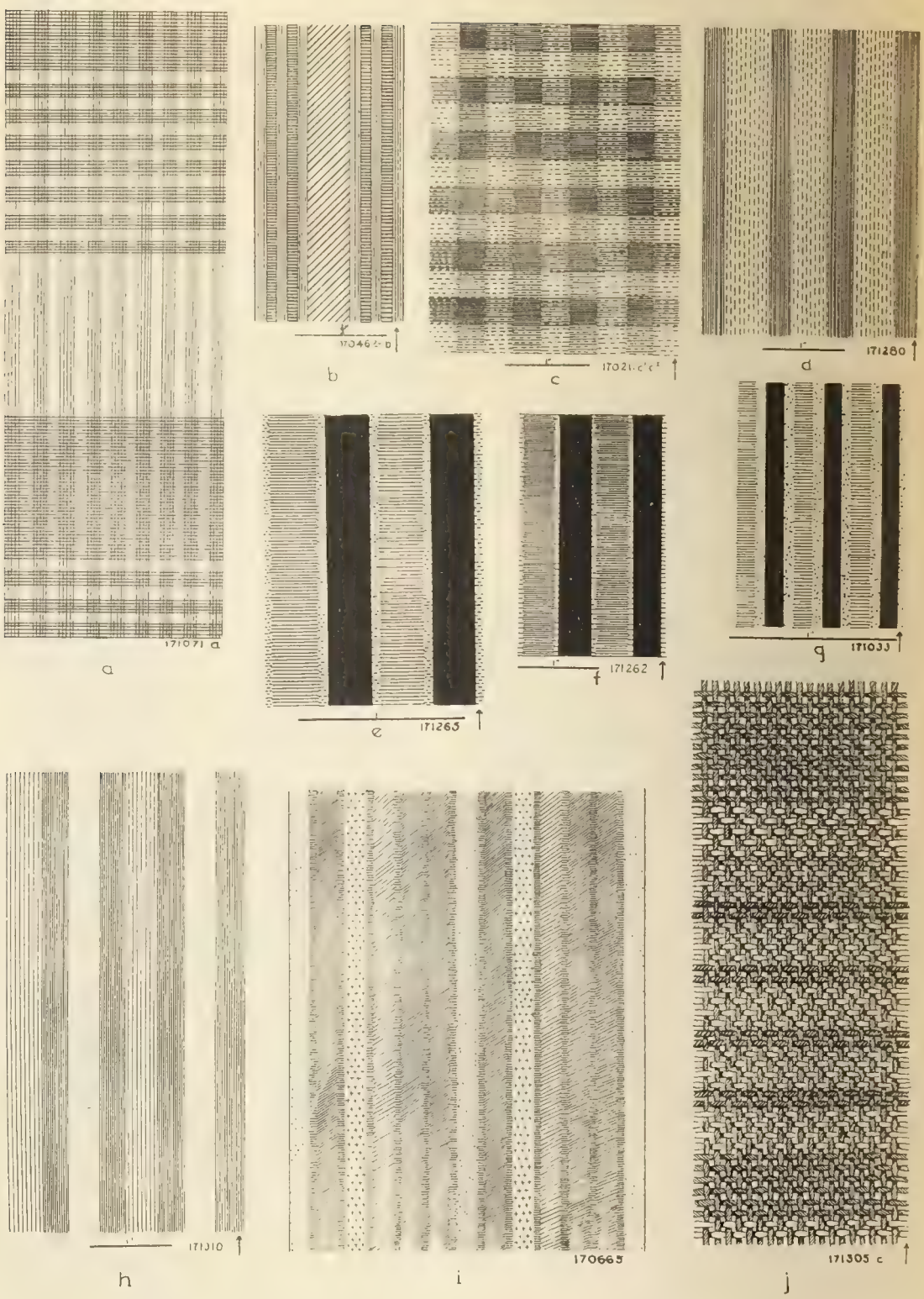
c

d

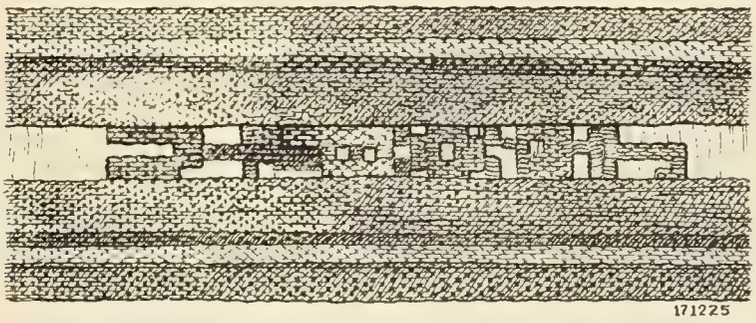
PADS AND A HEADBAND(?)



STRIPED COTTON MATERIALS



STRIPED WOOL MATERIALS



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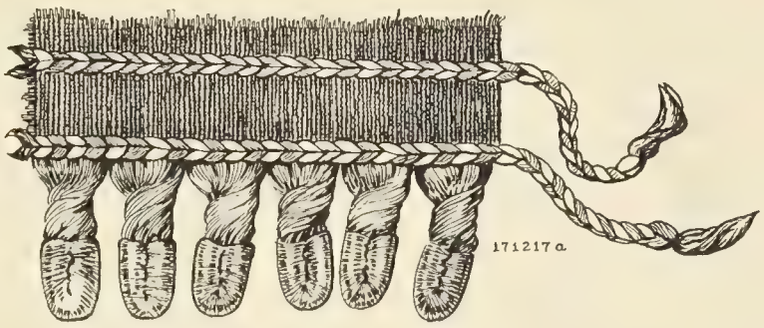

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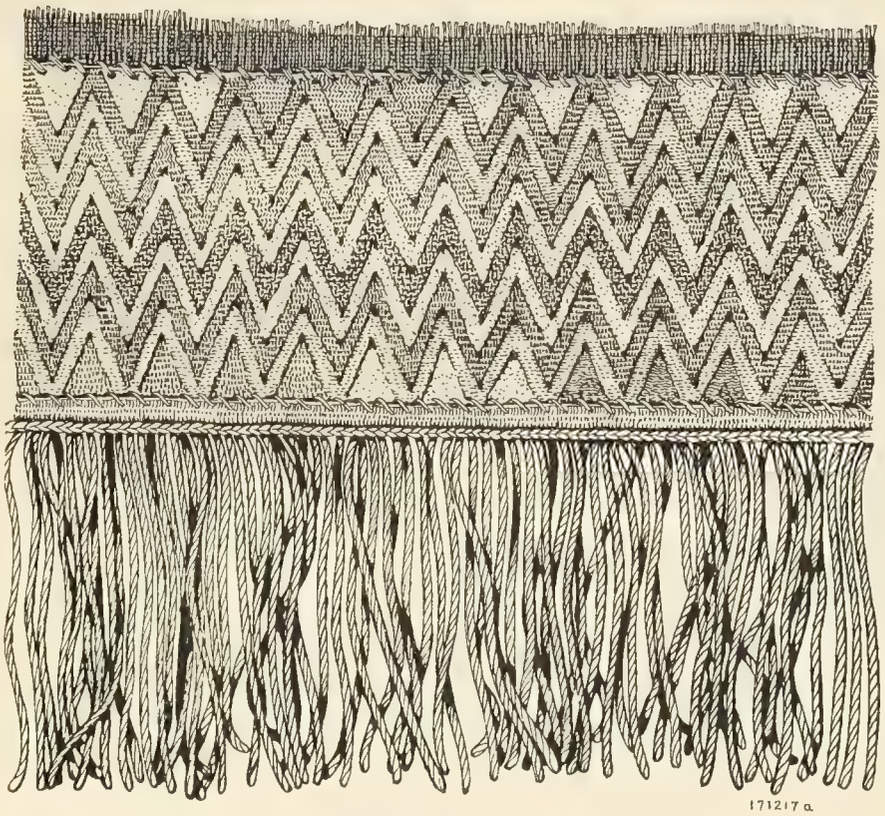

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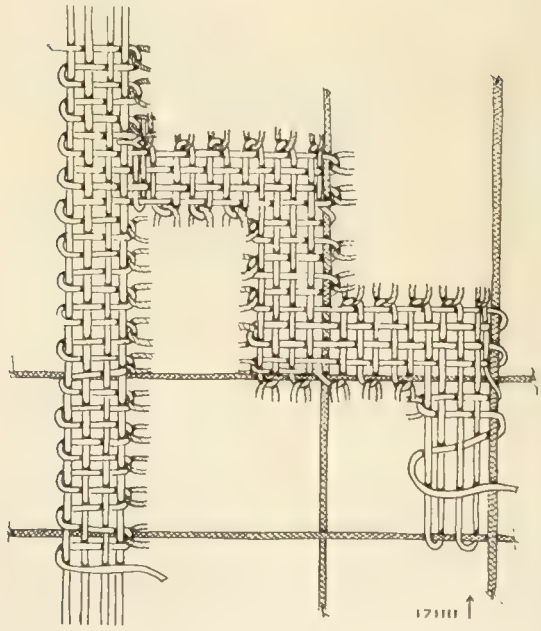
VARIATIONS IN TAPESTRY TECHNIQUE



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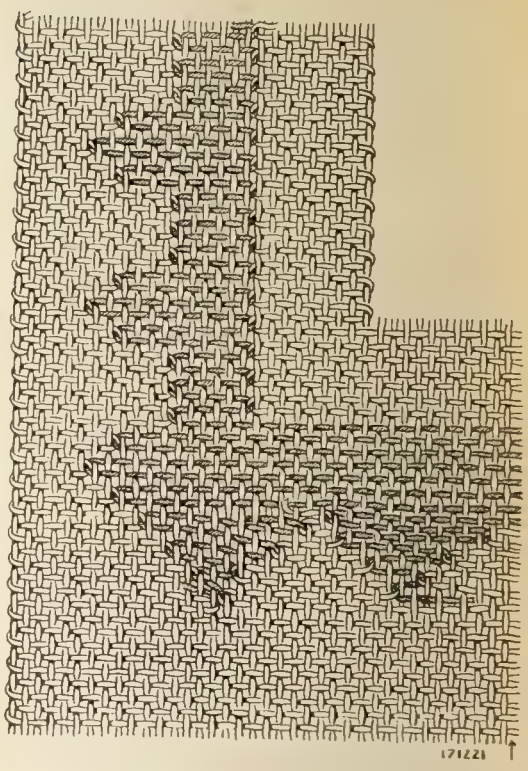

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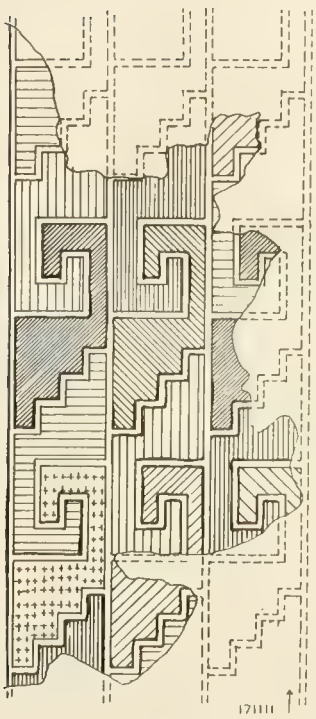

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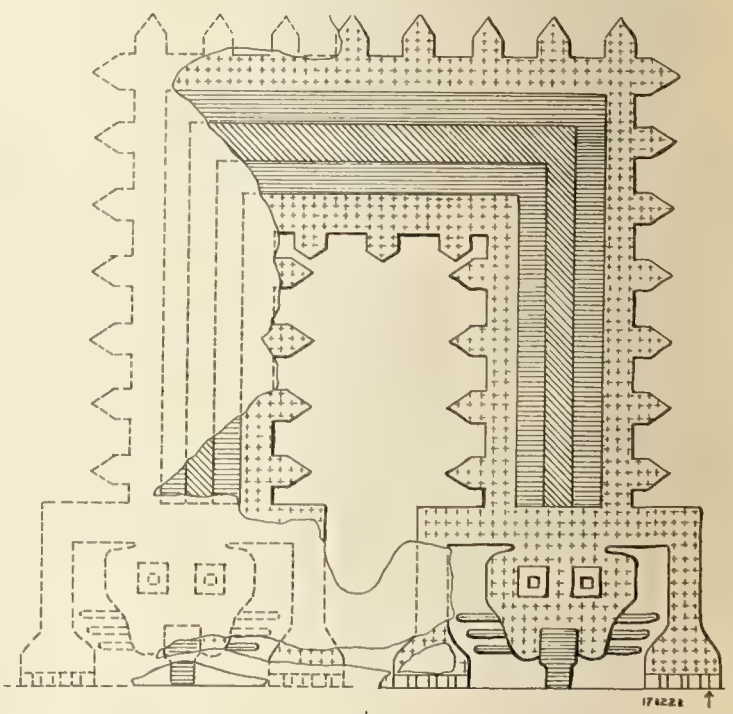

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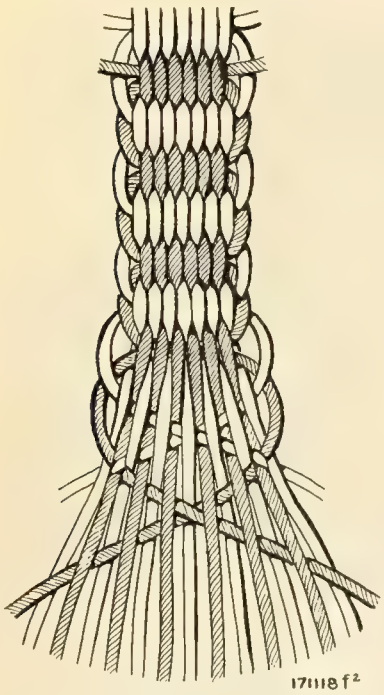
INTERLOCKING IN PLAIN WEAVES



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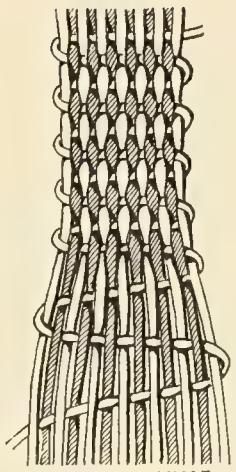

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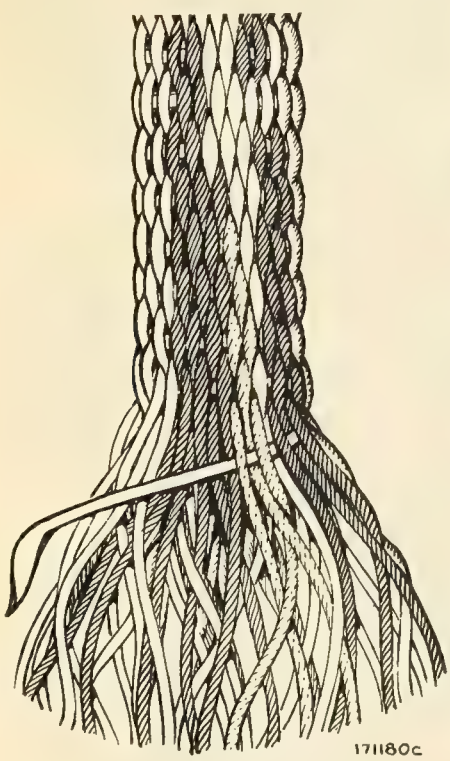

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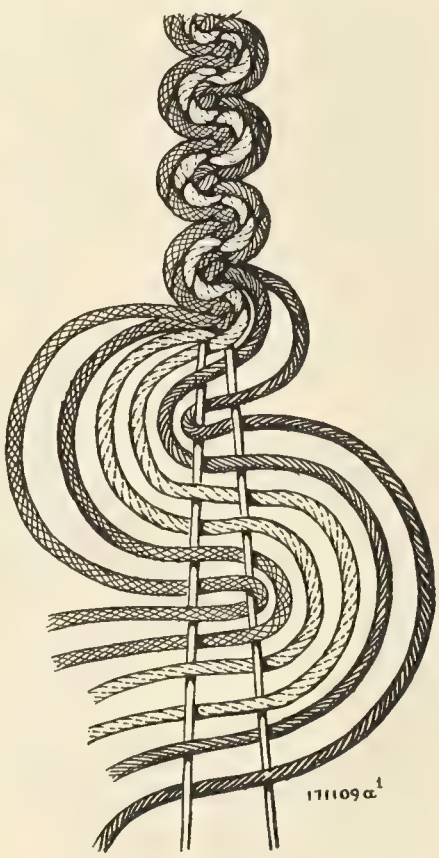

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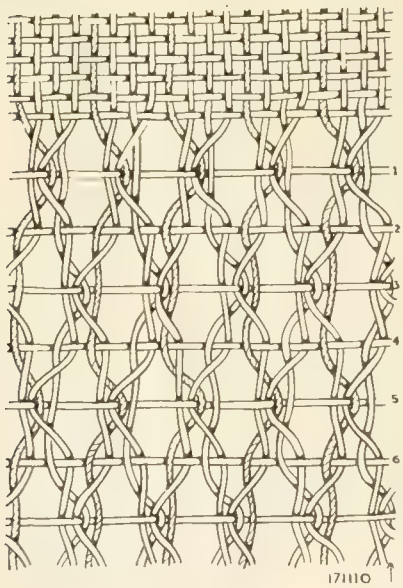
WOVEN BANDS AND CORDS



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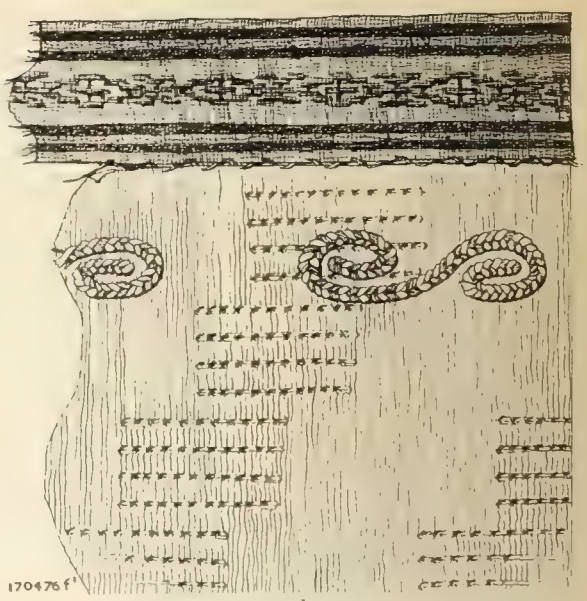

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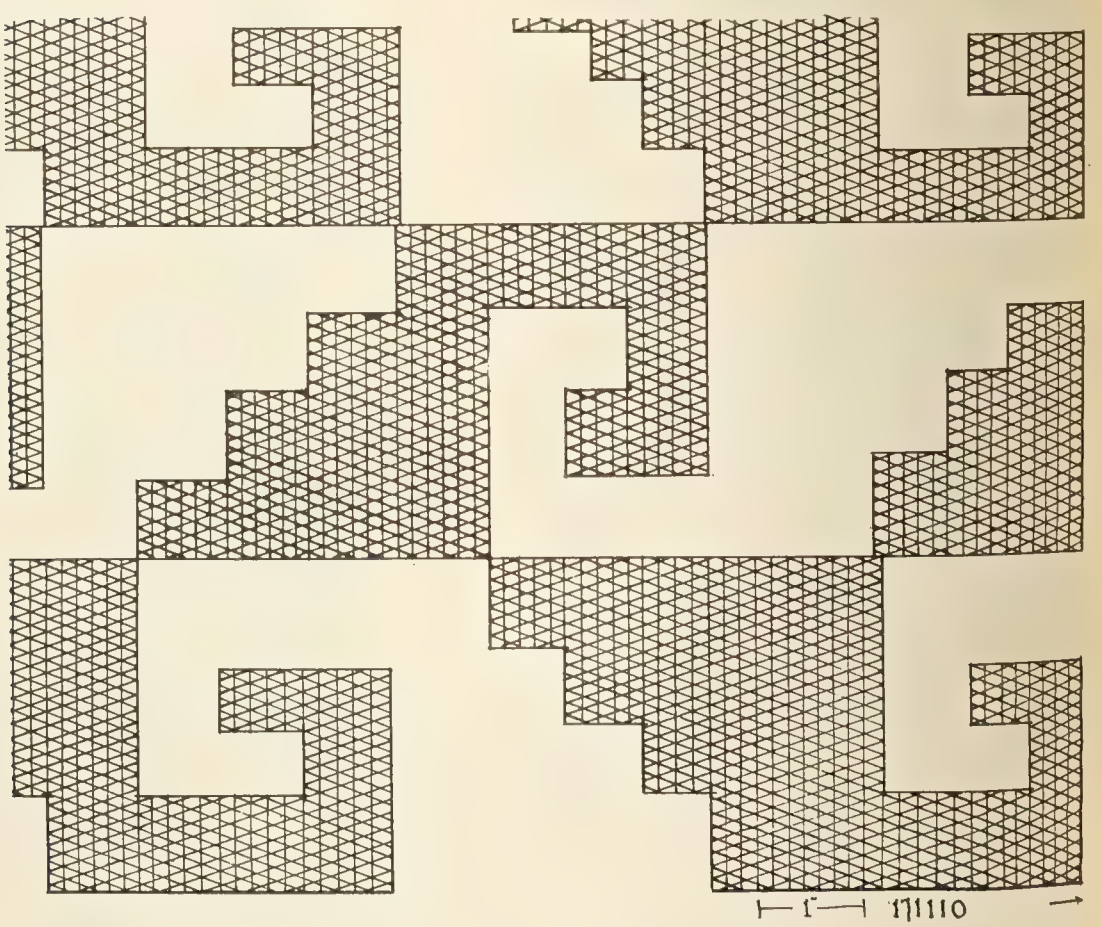

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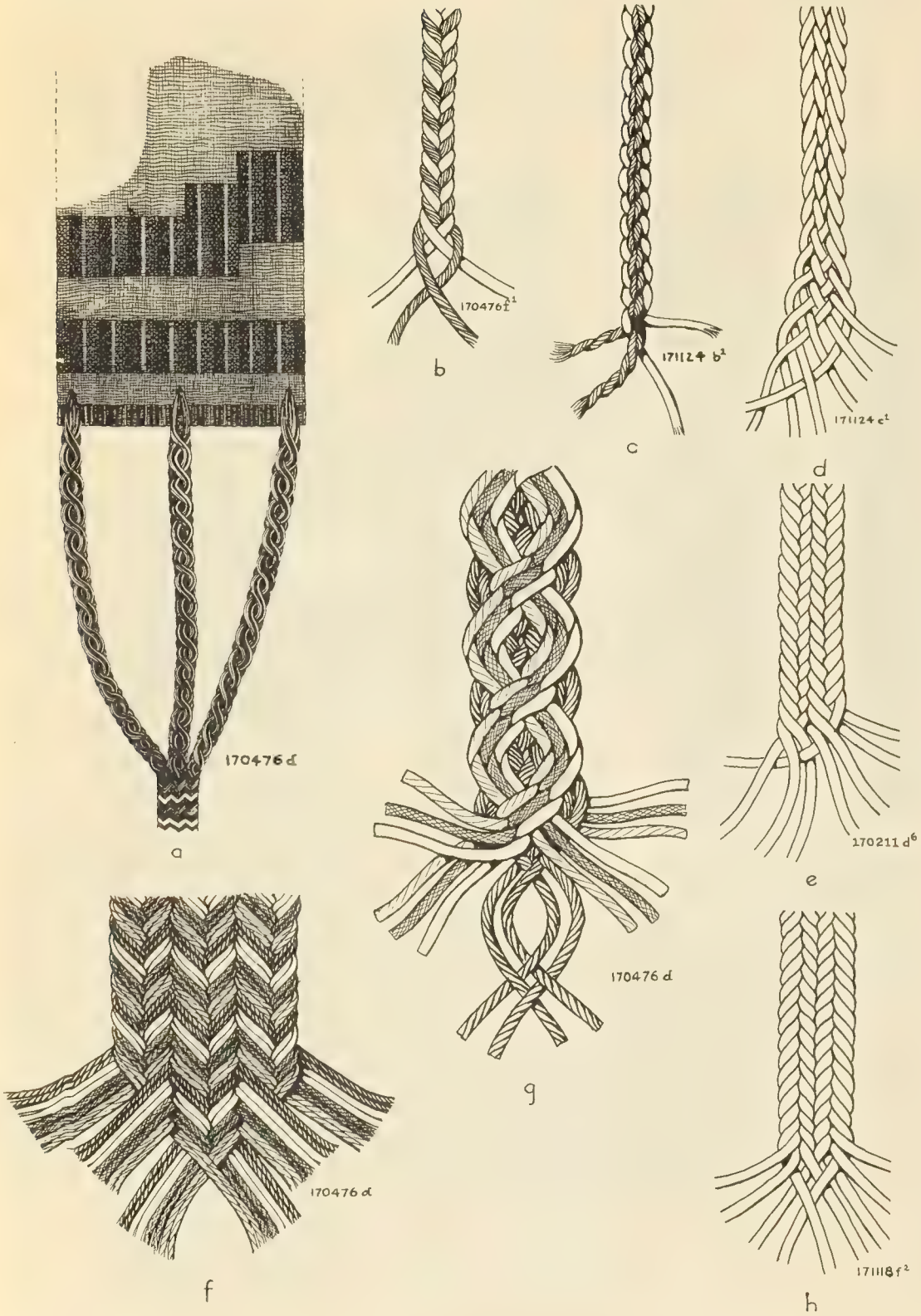
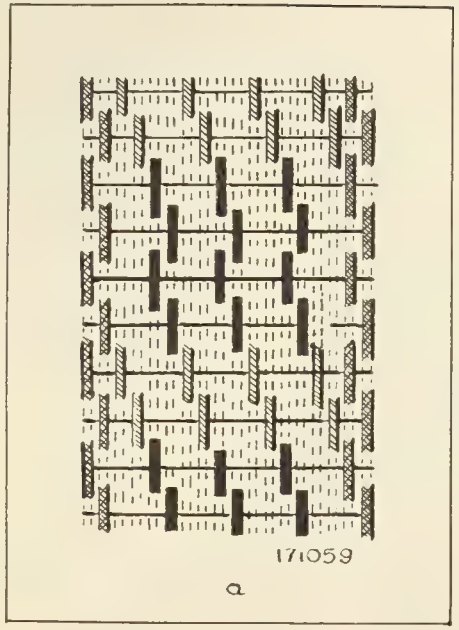
GAUZE WEAVES



PLAITED BANDS AND CORDS



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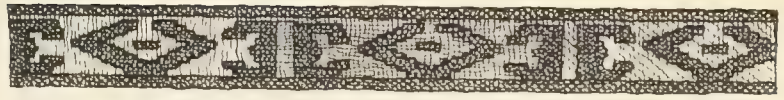

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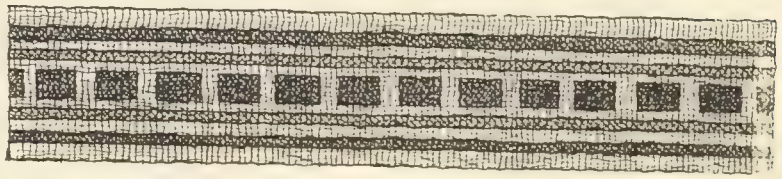

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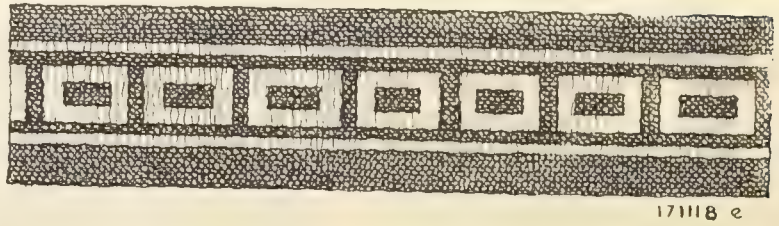

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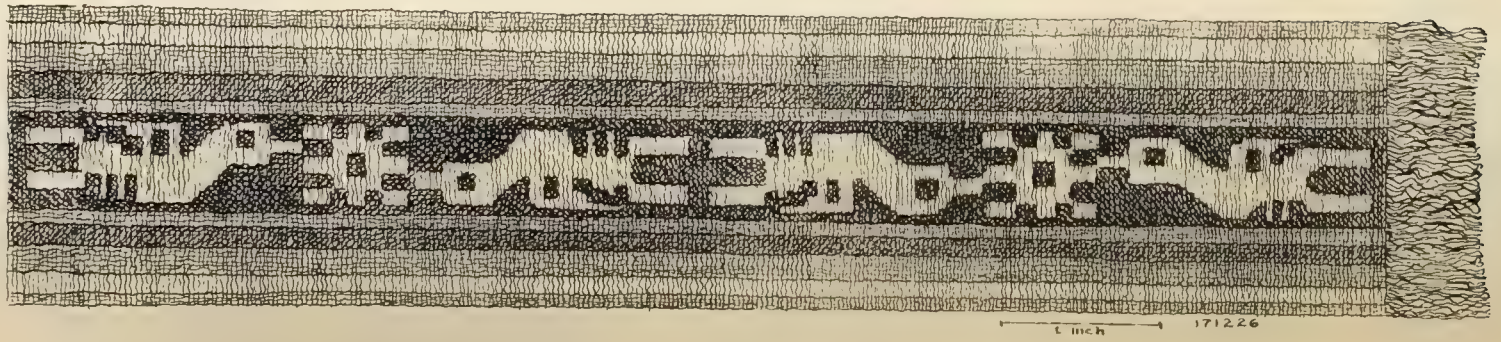

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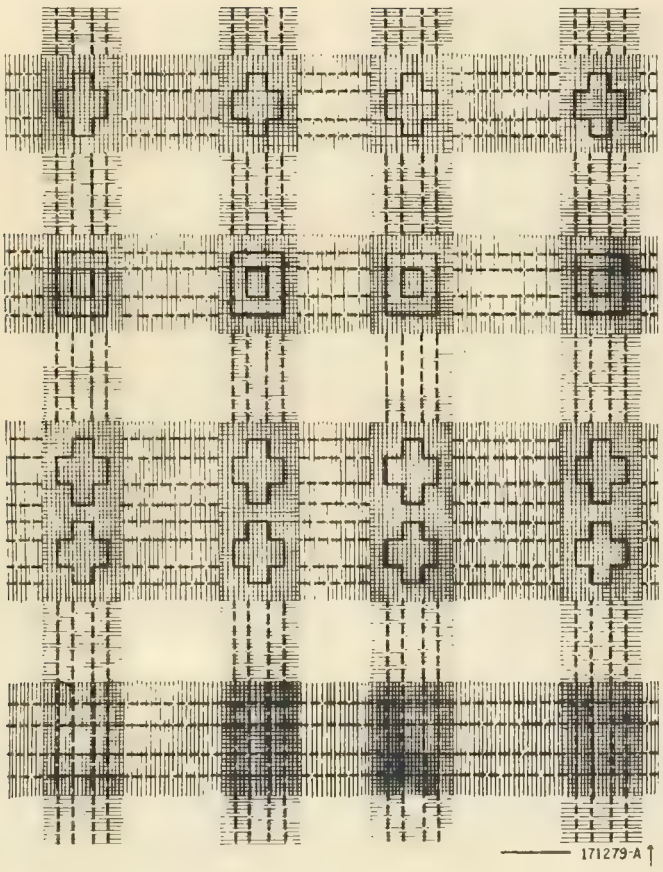
PATTERN-WEAVE BORDERS



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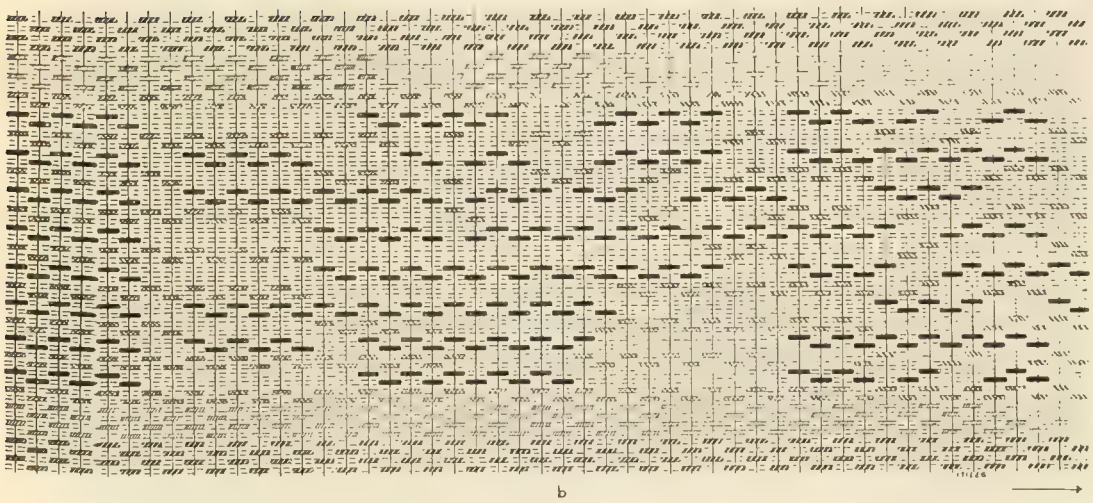

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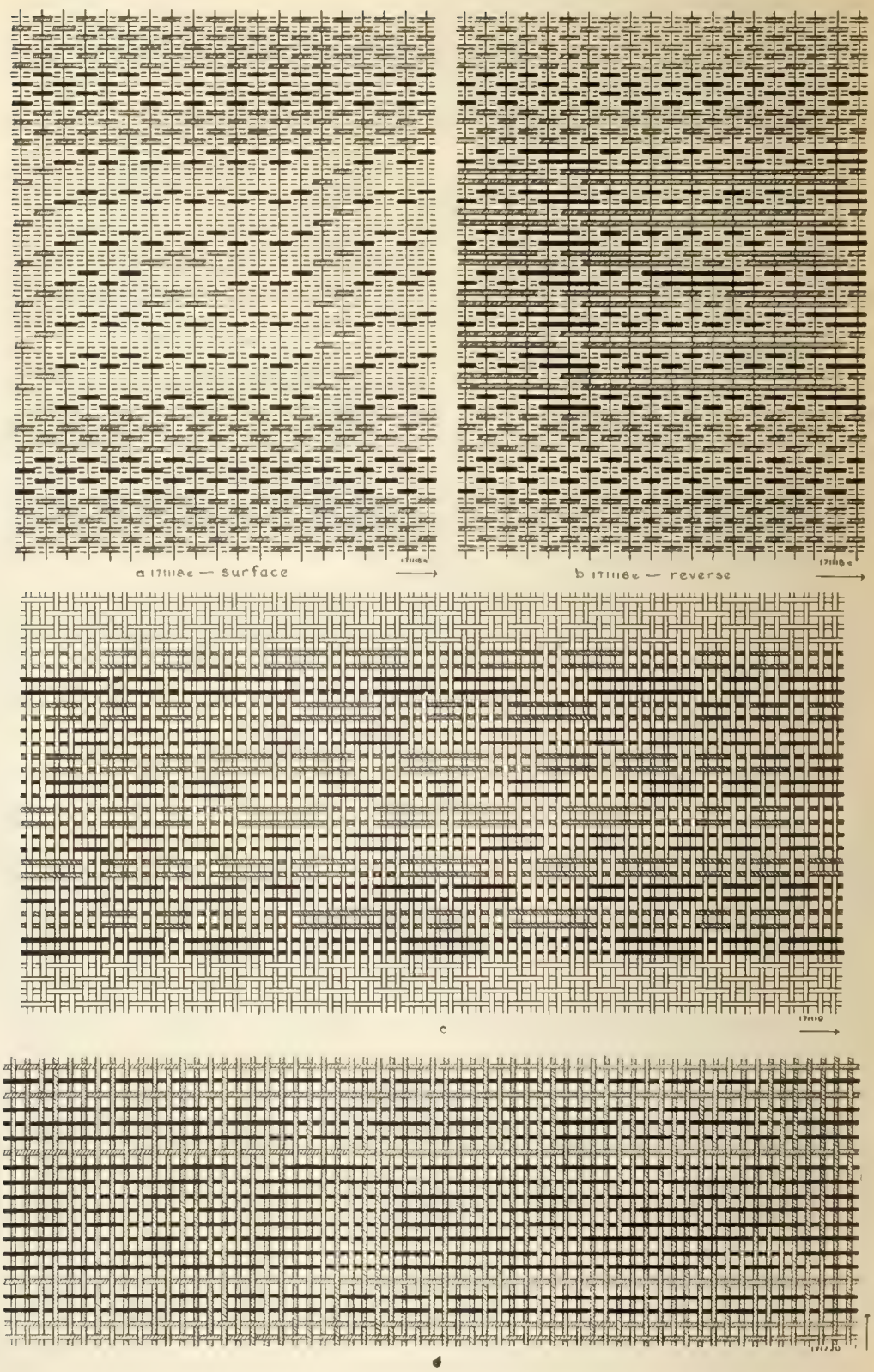
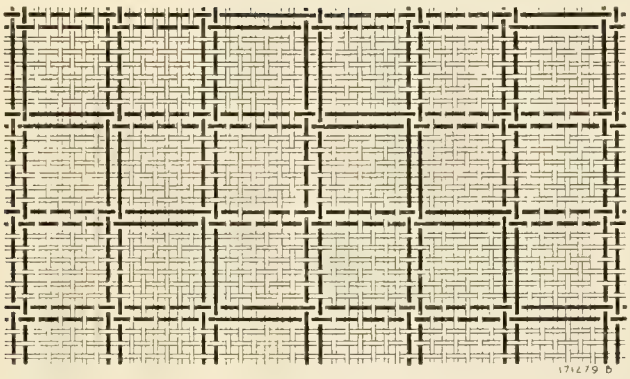
FLAT VIEWS OF PATTERN WEAVES



FLAT VIEWS OF PATTERN WEAVES



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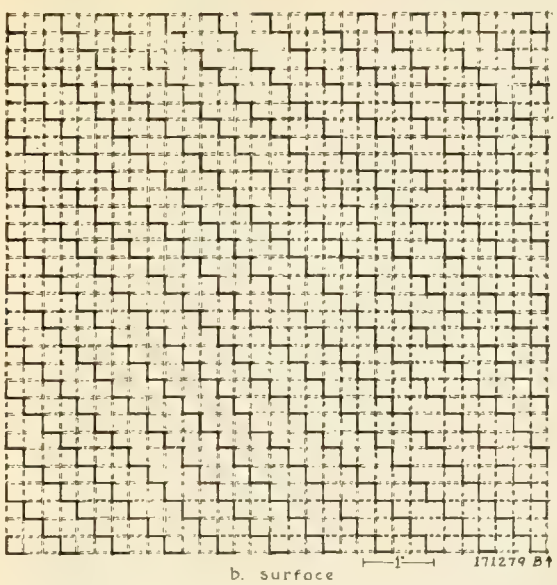

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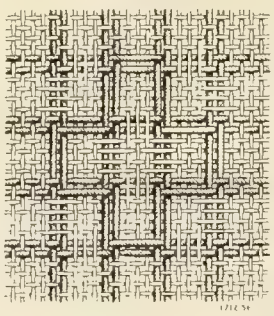

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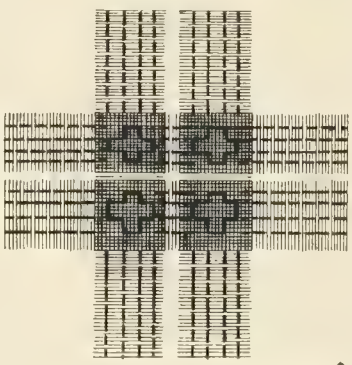

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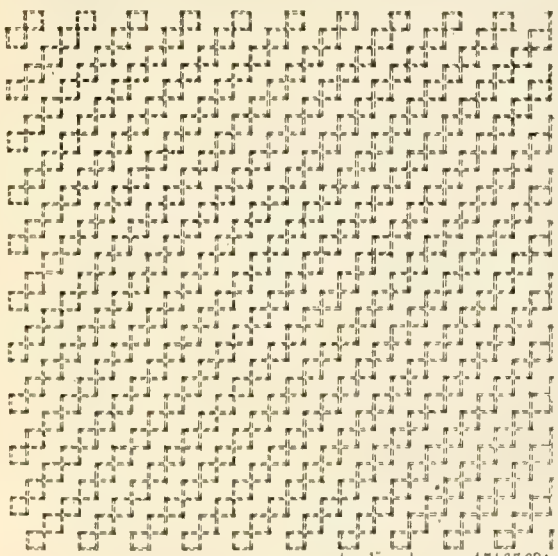
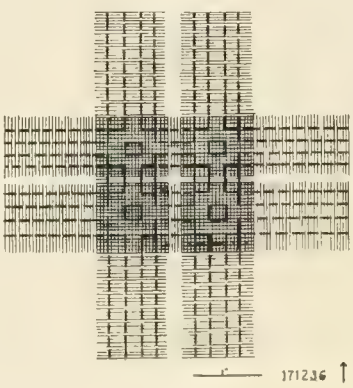


c, reverse



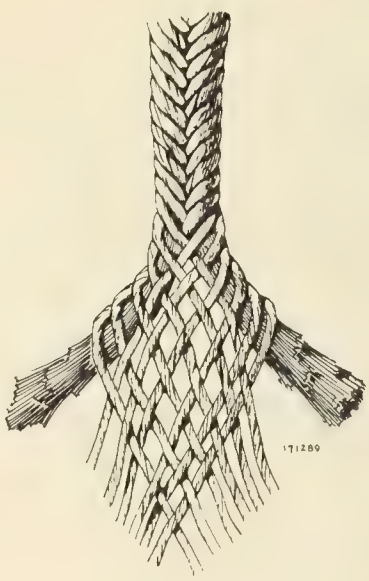
f, reverse

FLAT VIEWS OF PATTERN WEAVES

FLAT VIEW OF A PATTERN WEAVE

a

b



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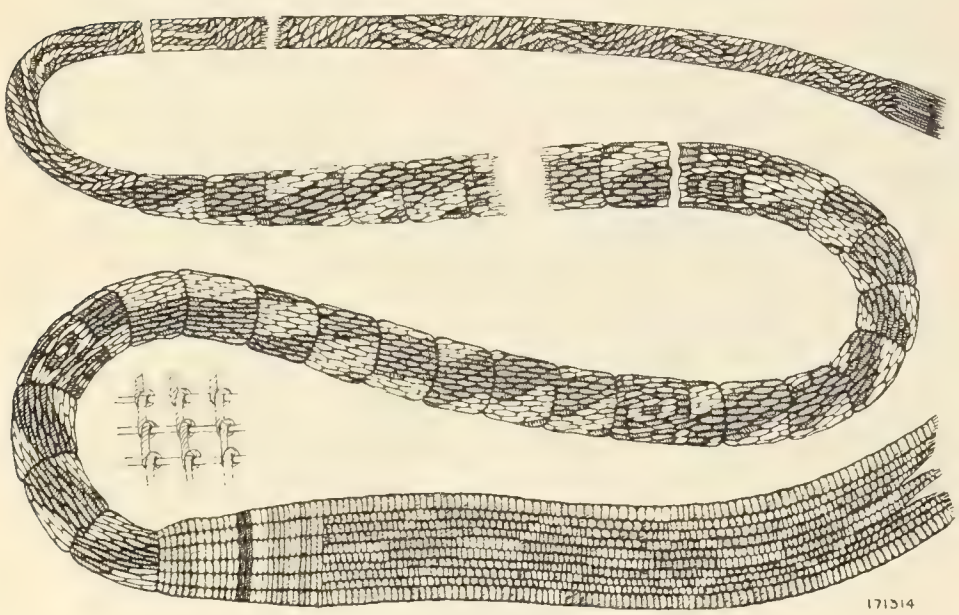

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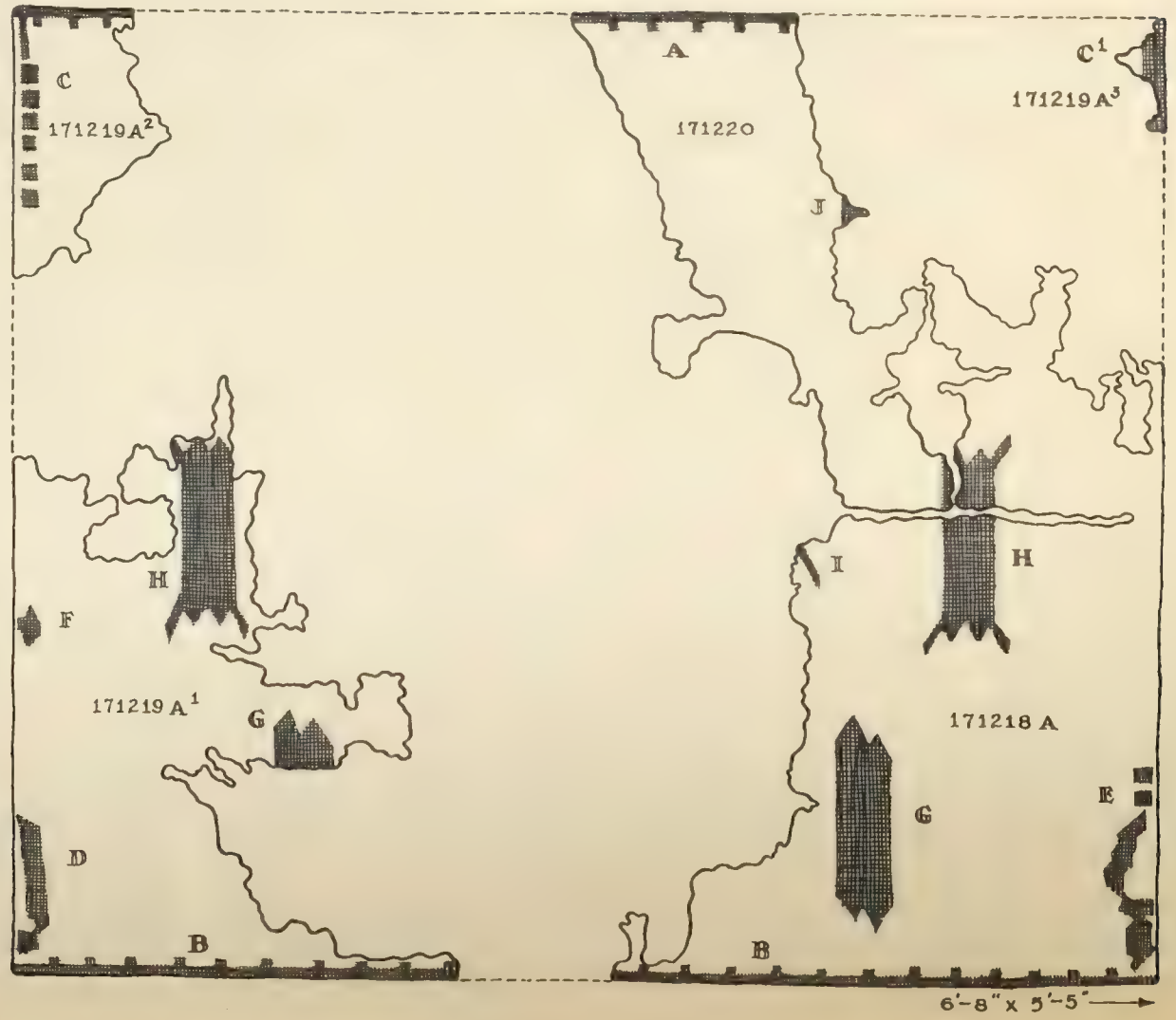
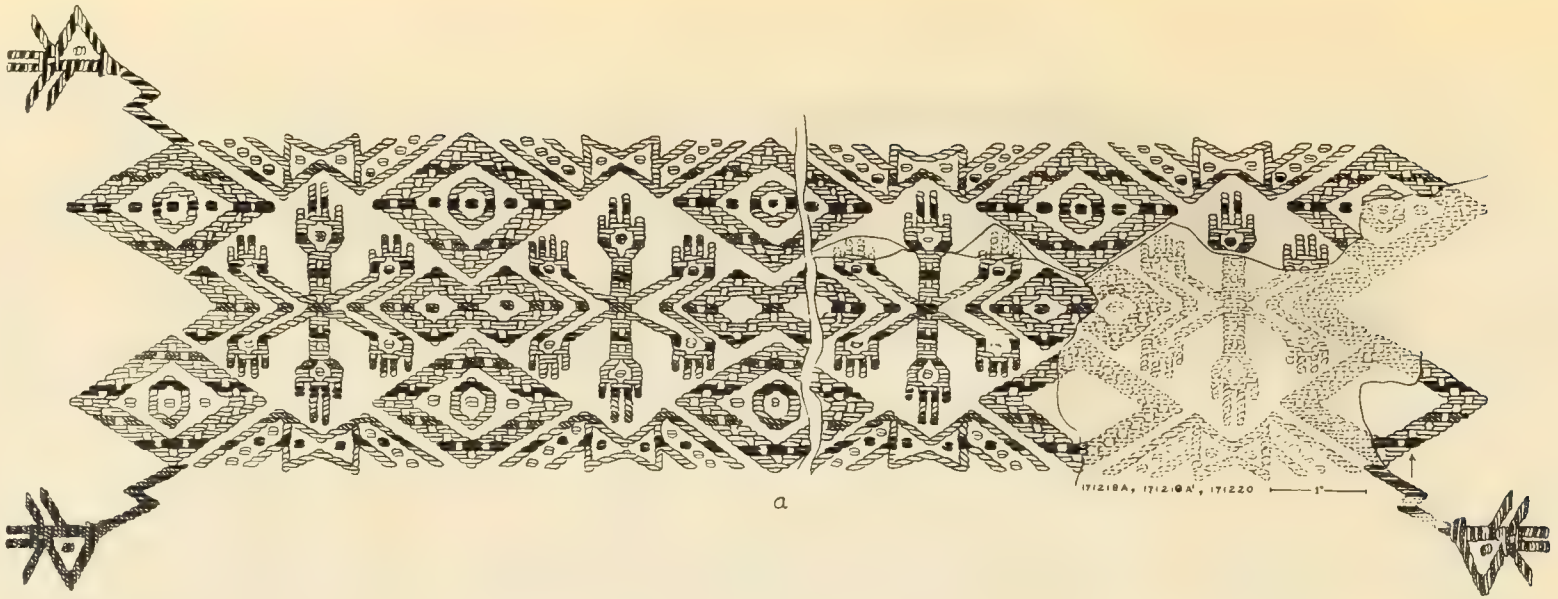
SLINGS AND SLING DETAILS



RECONSTRUCTED MANTLE 171220



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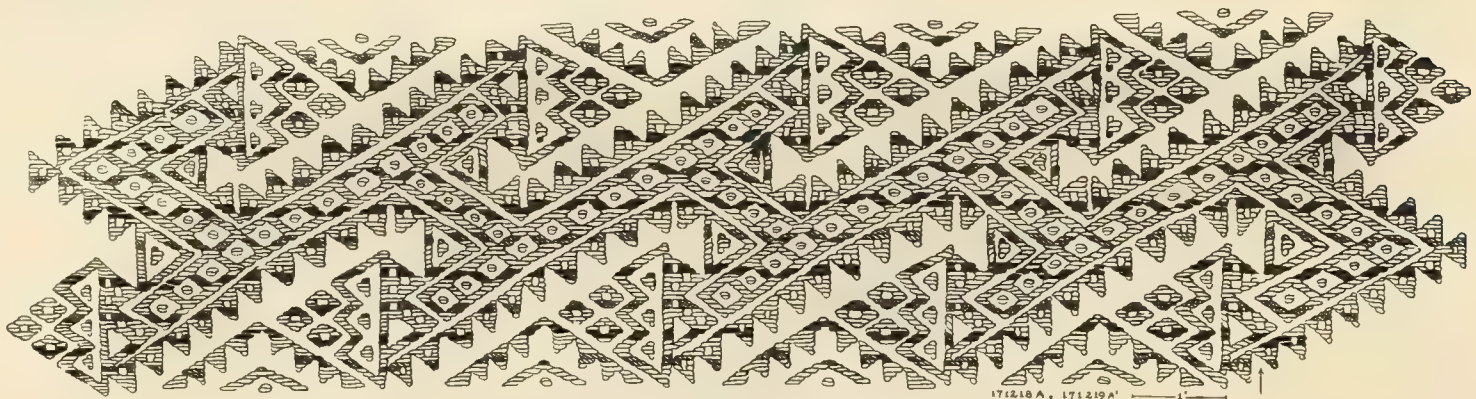

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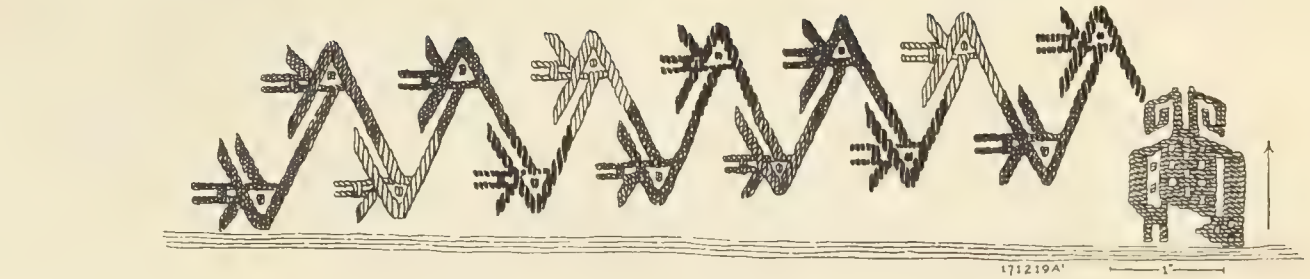
BROCADED MOTIVES IN MANTLE 171220



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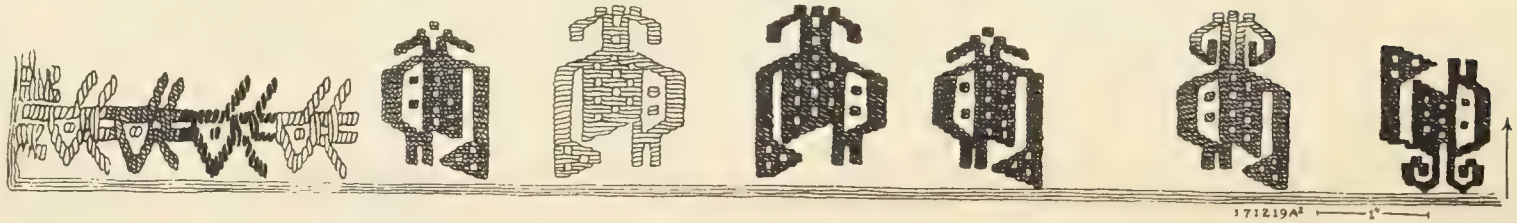

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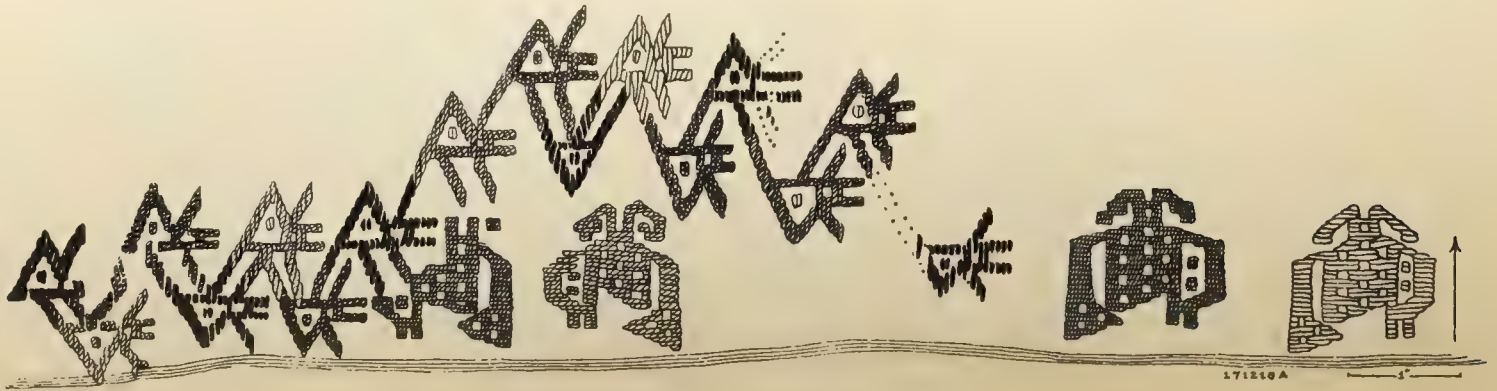

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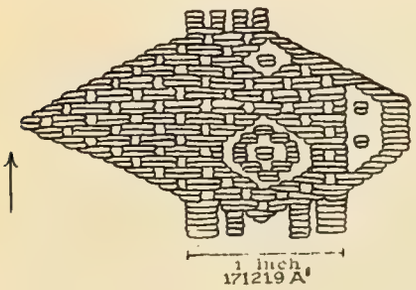
BORDER MOTIVES IN MANTLE 171220



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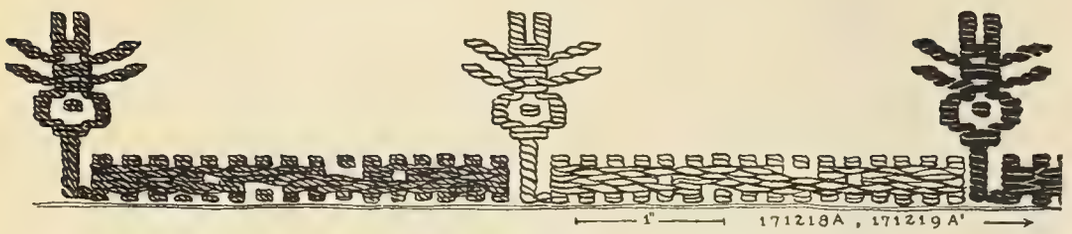

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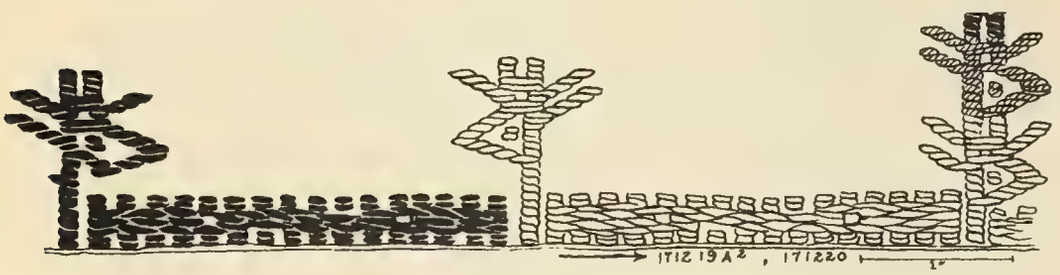

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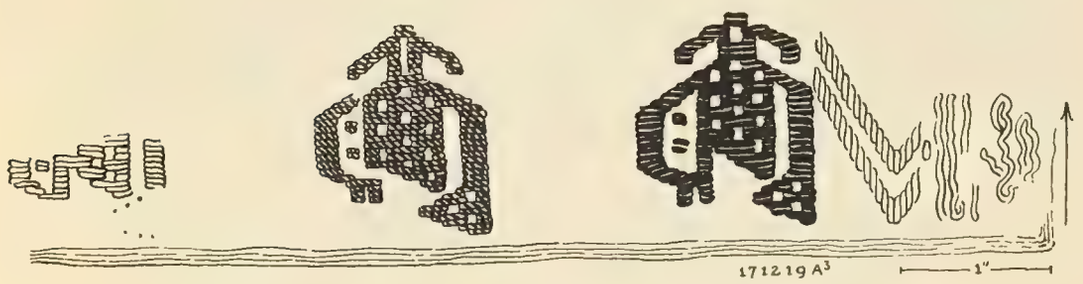

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BORDER MOTIVES IN MANTLE 171220

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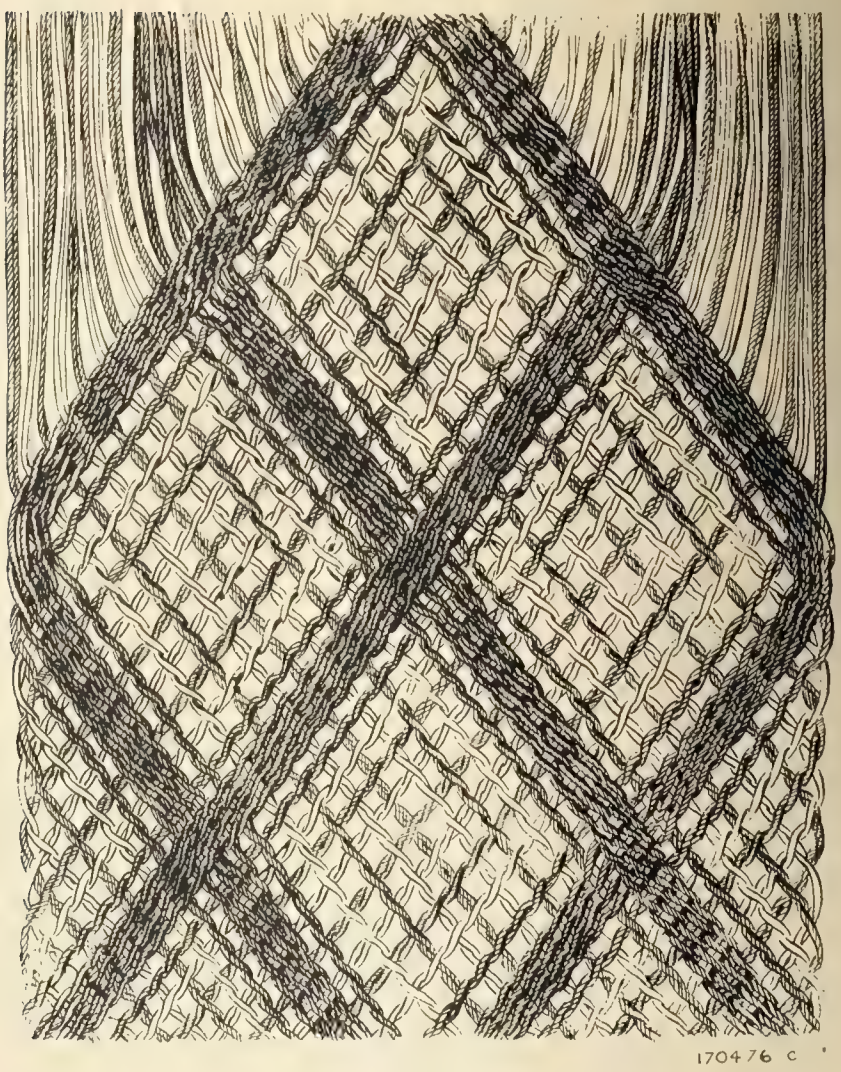

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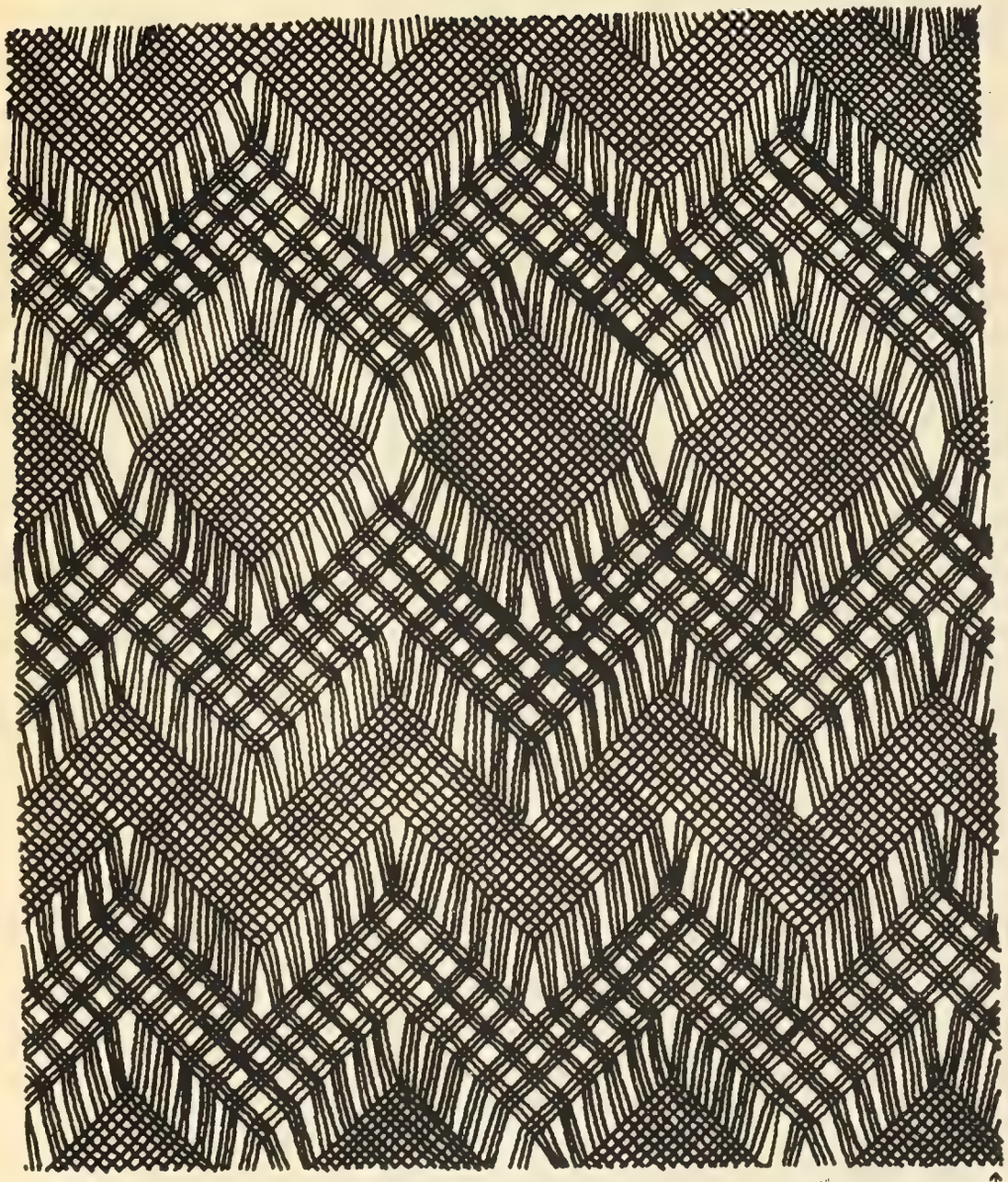
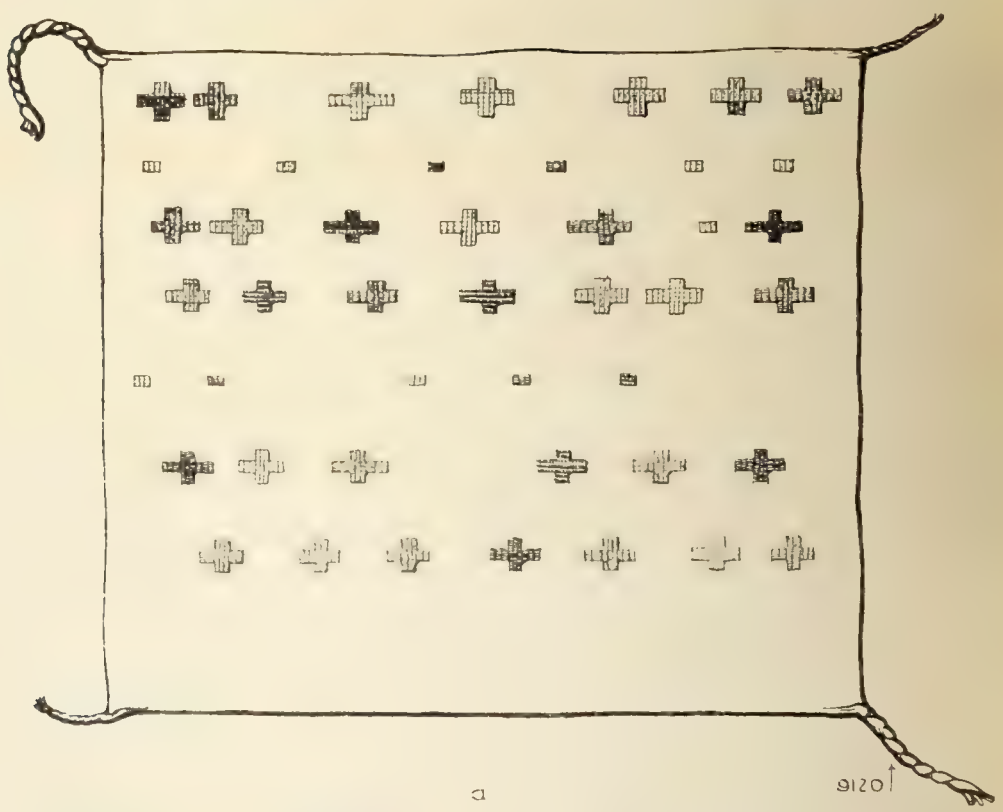
TWINE-PLAITED BANDS



TWINED "LACE"



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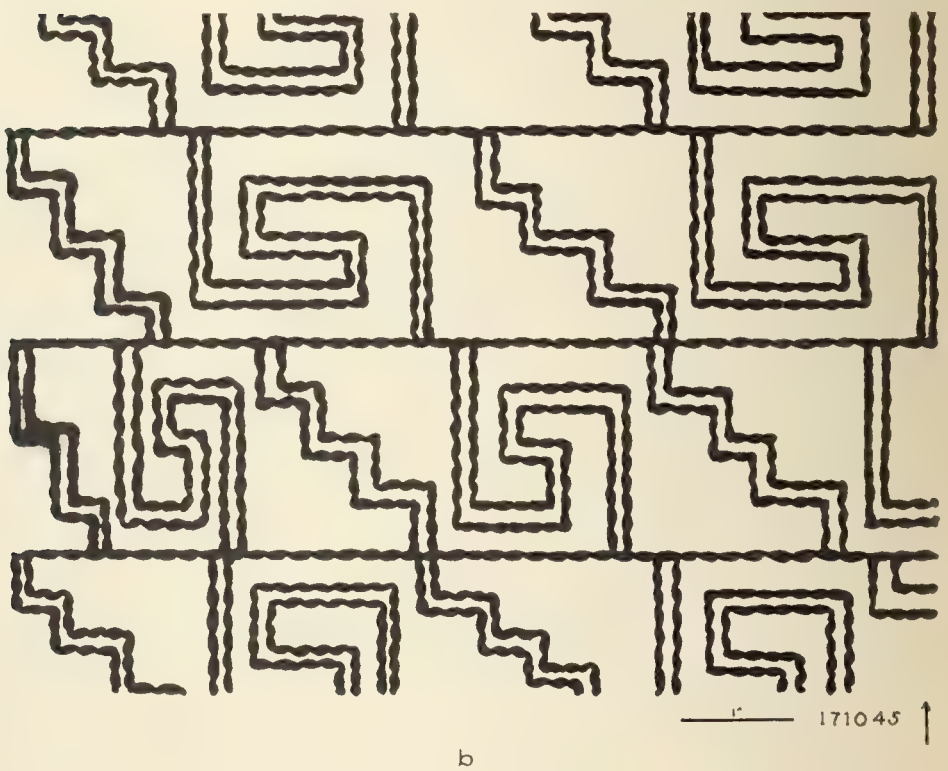
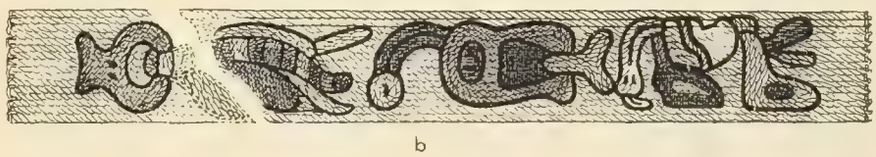


b

EMBROIDERED KERCHIEFS

a



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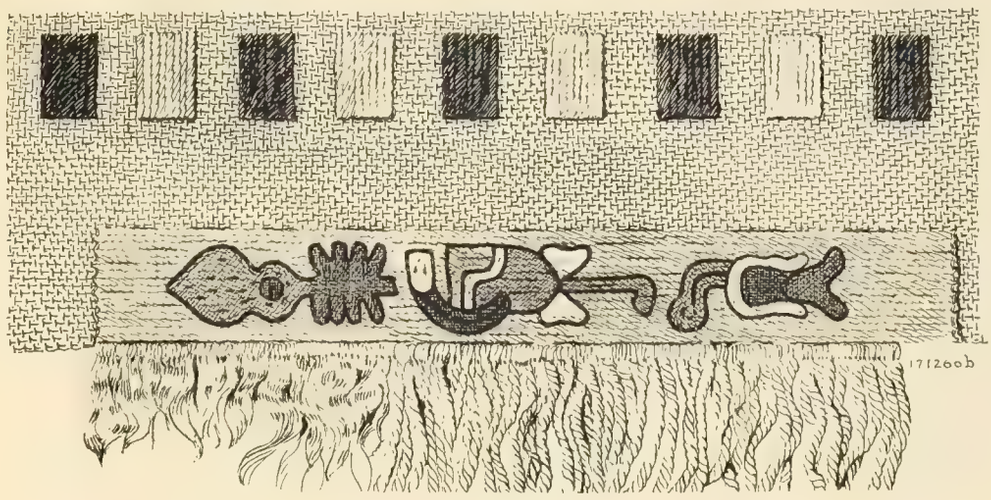

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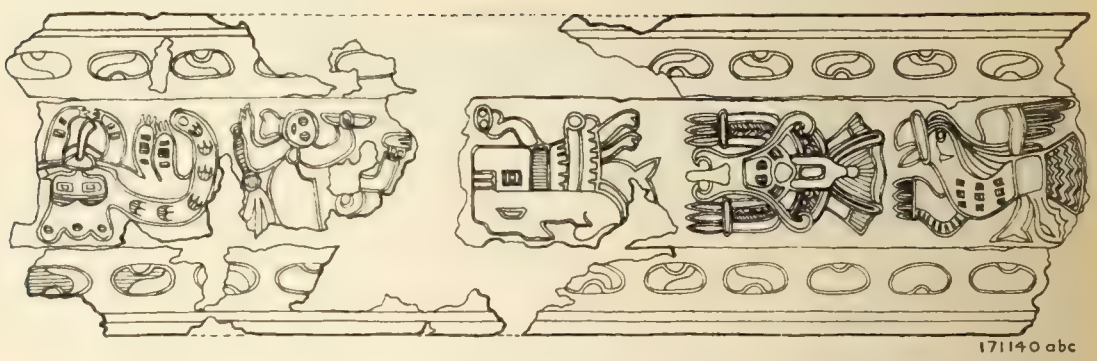
EMBROIDERED TUNIC BANDS



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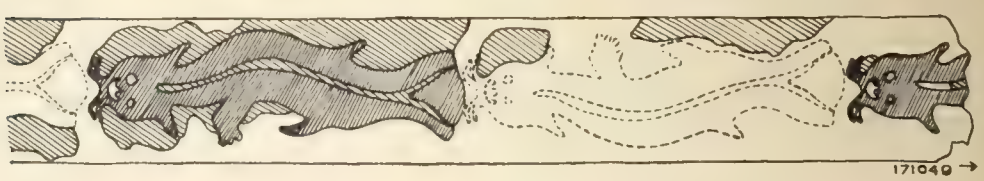

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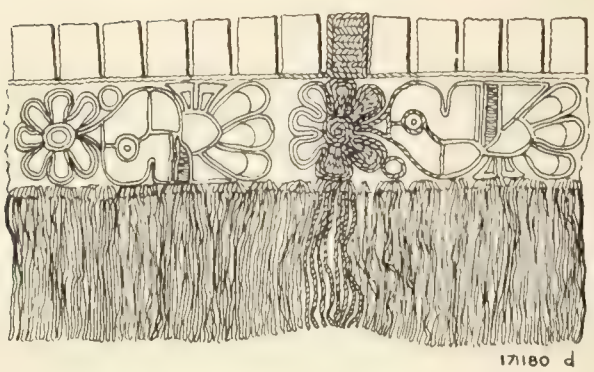

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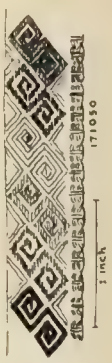

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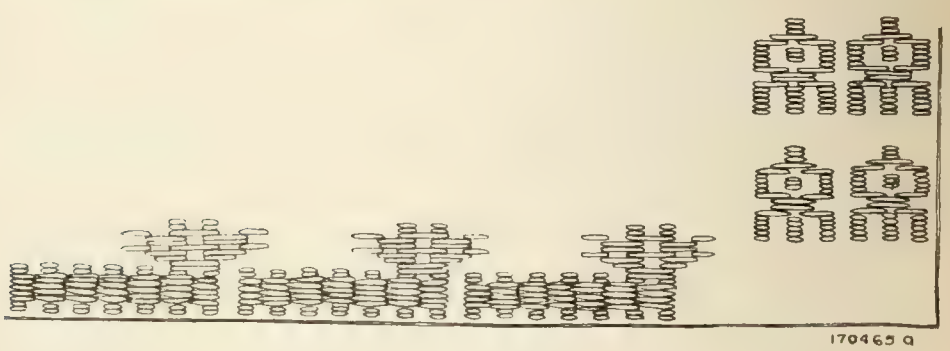

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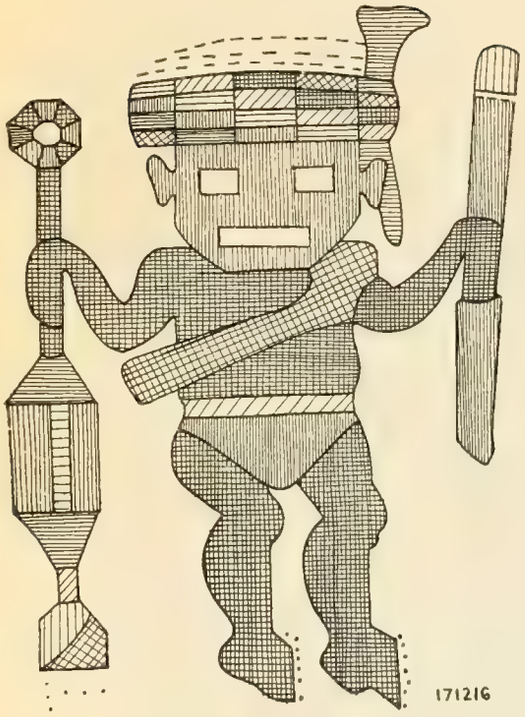
EMBROIDERED BANDS



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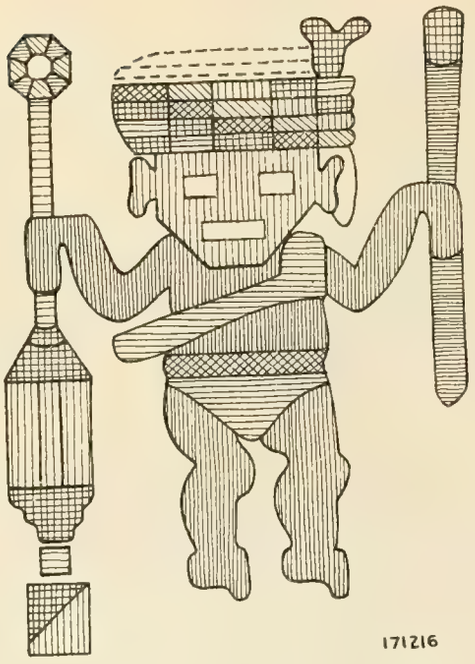

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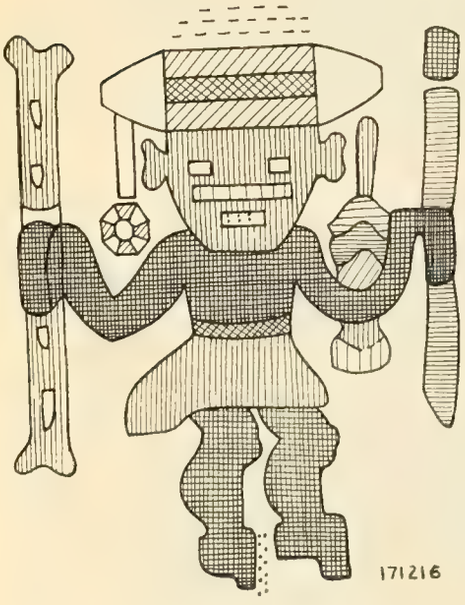

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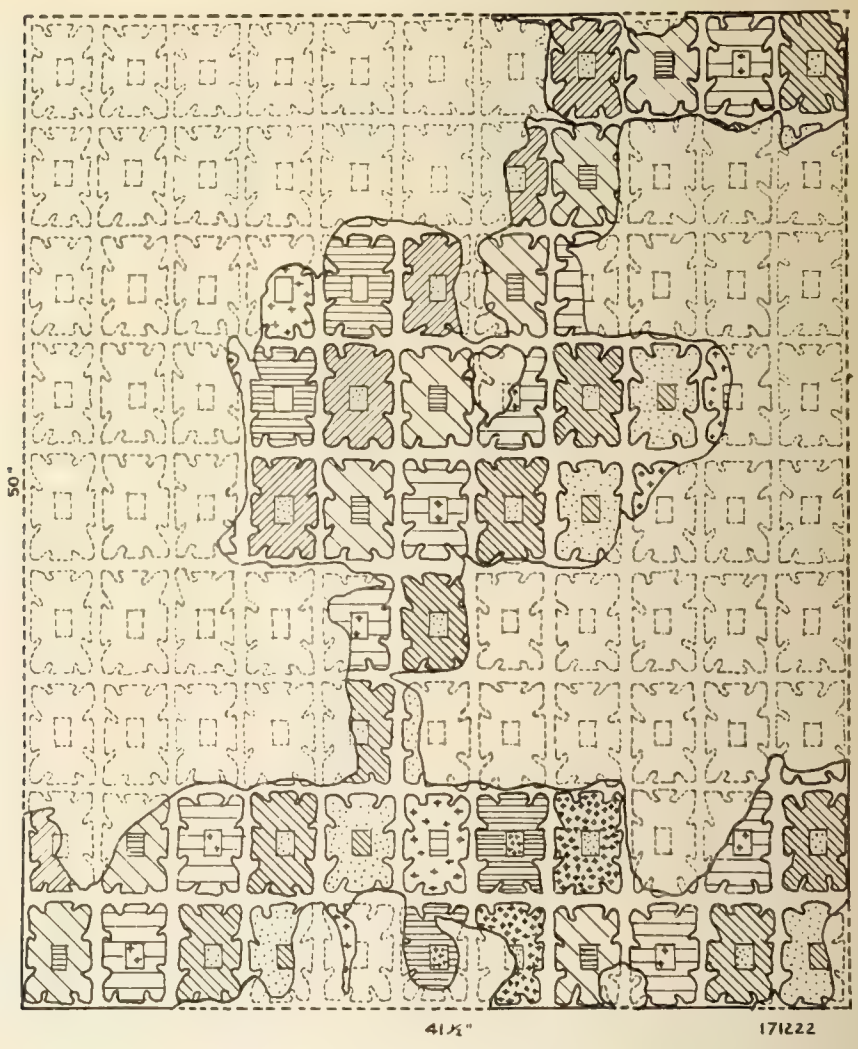

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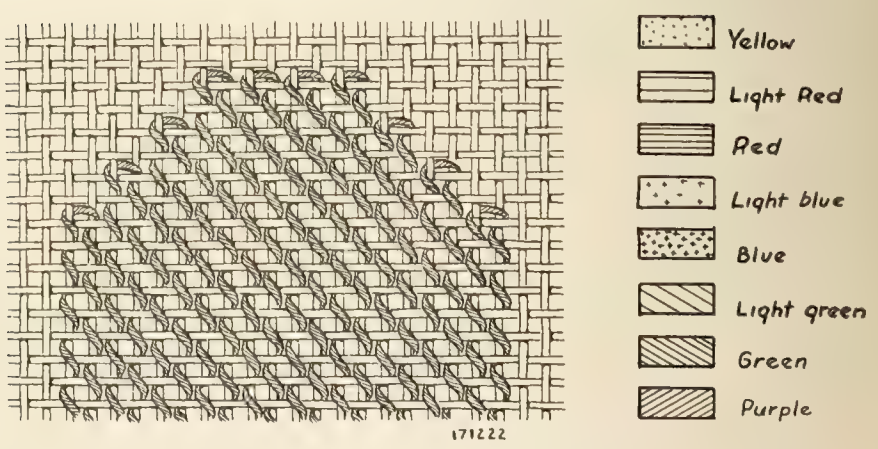

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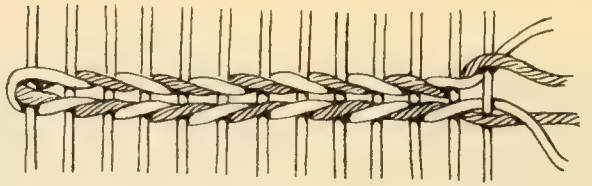

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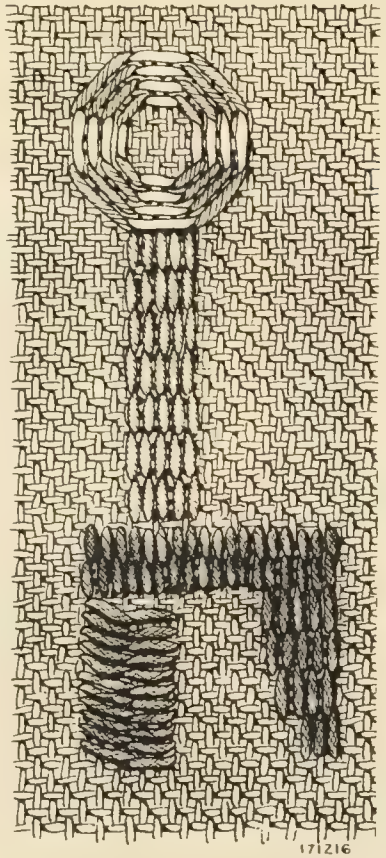

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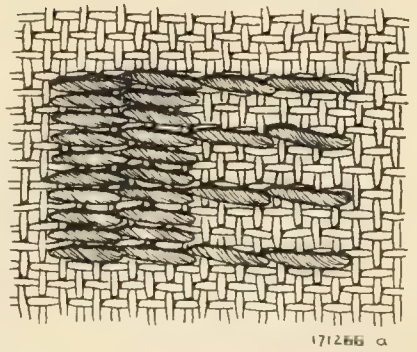

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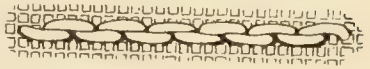

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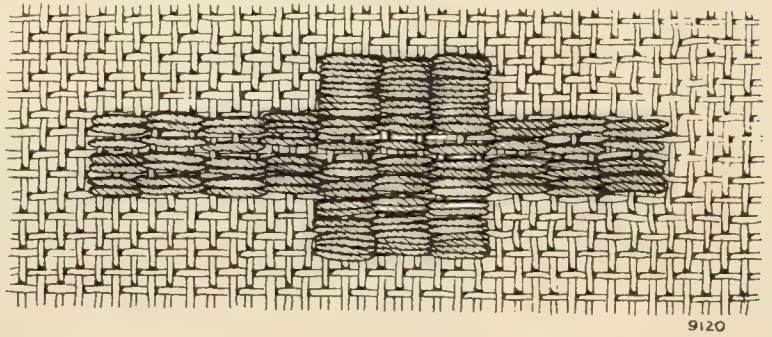

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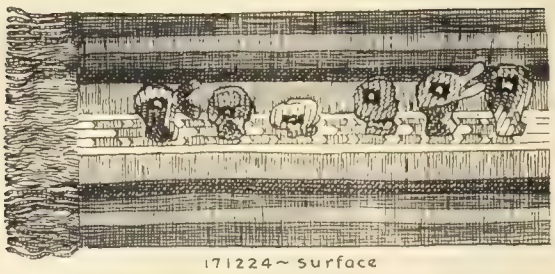

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171224 ~ profile

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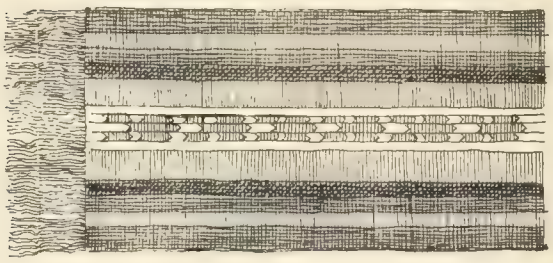

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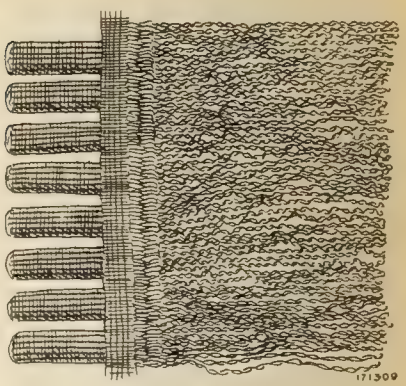

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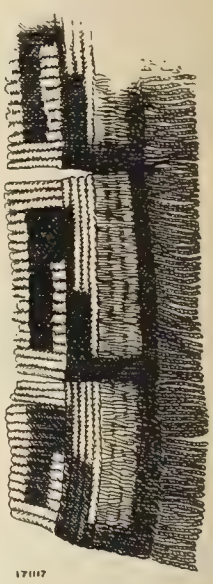

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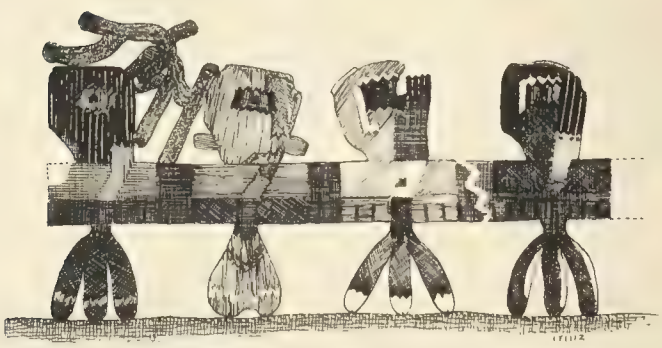

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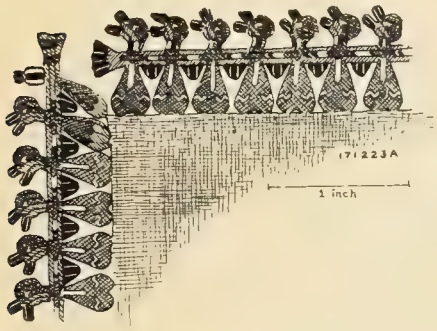

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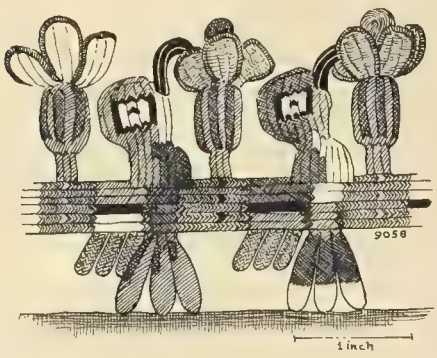

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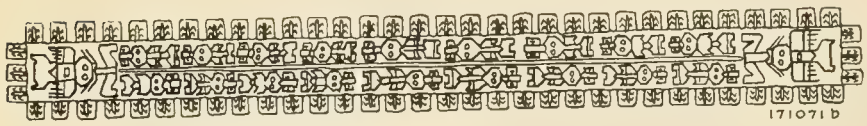

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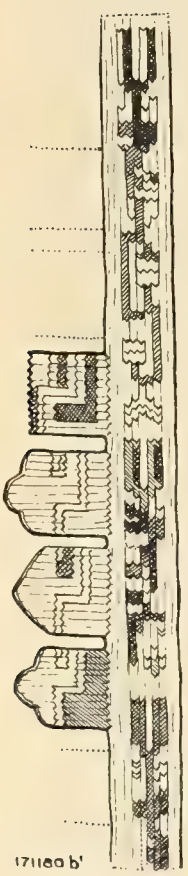

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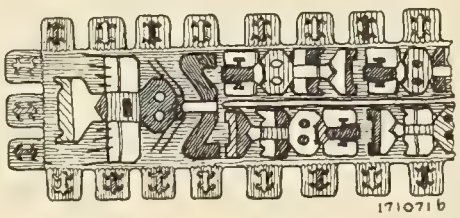

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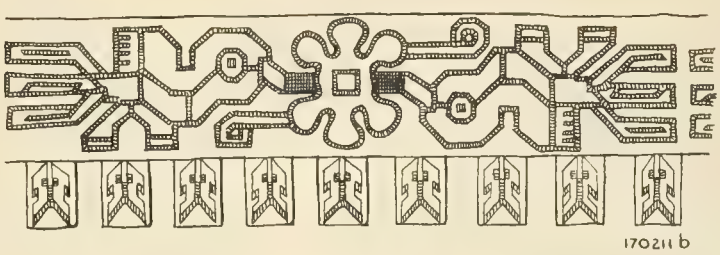

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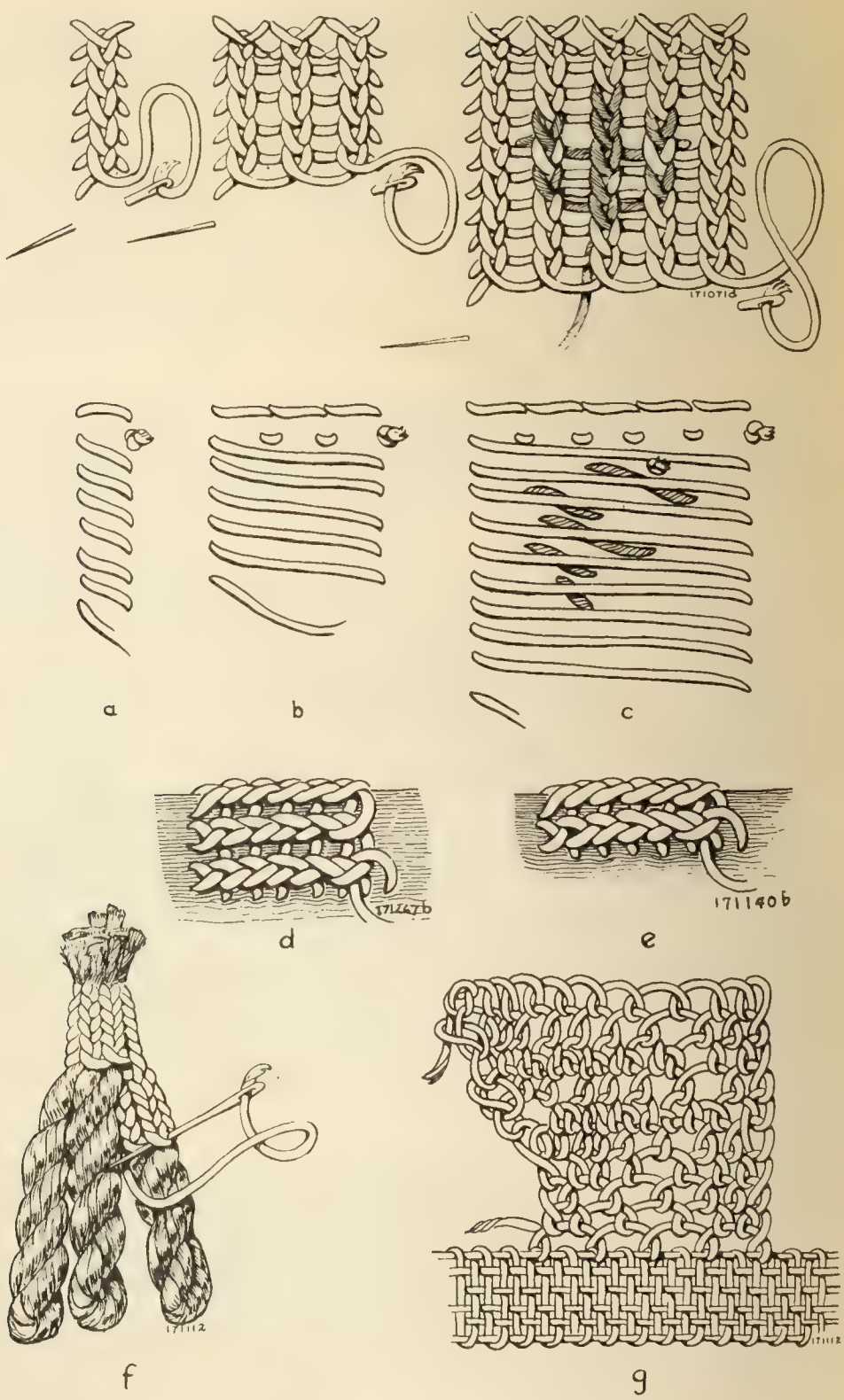

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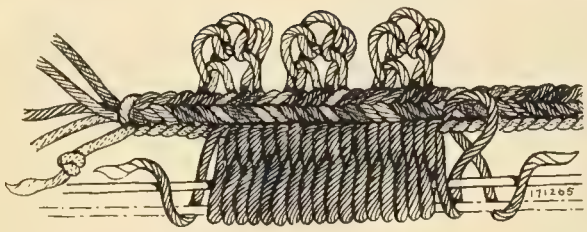

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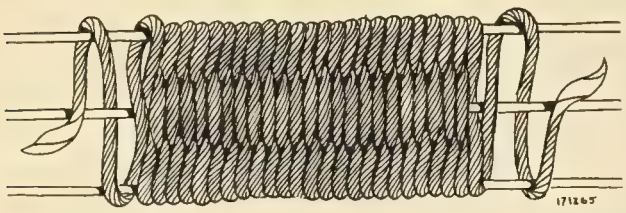

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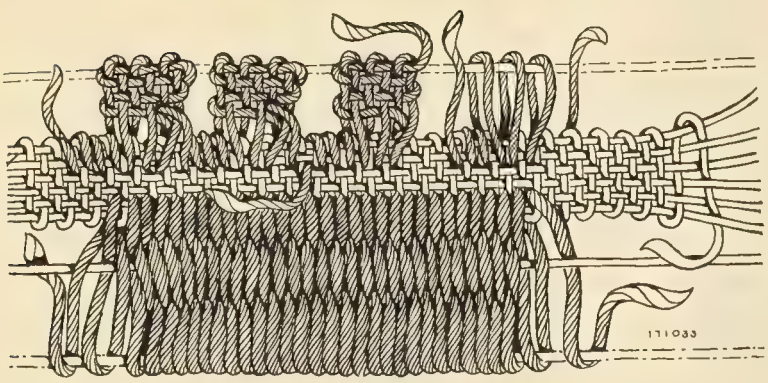

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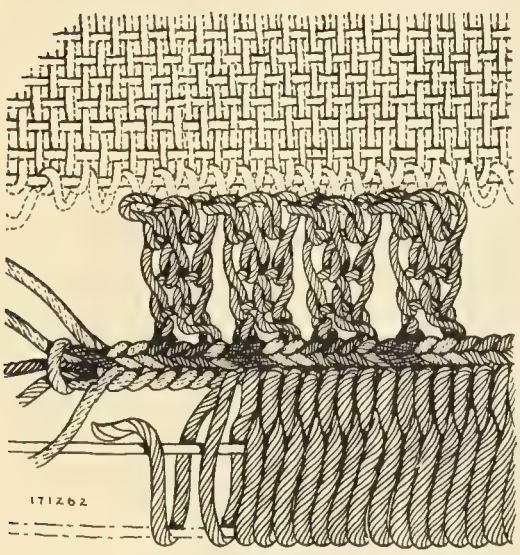

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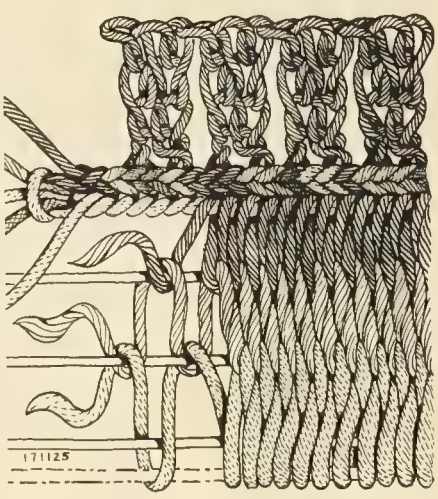

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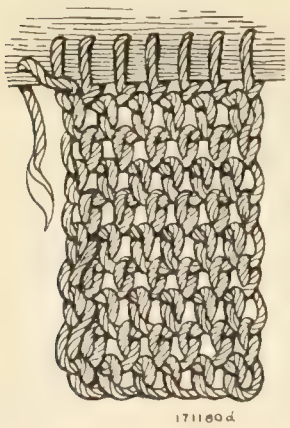

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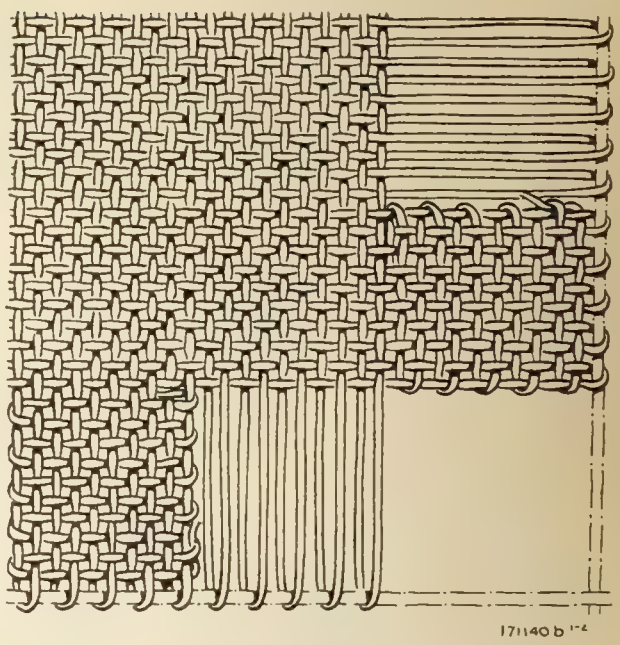

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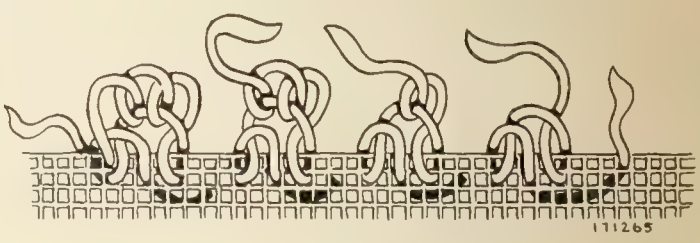

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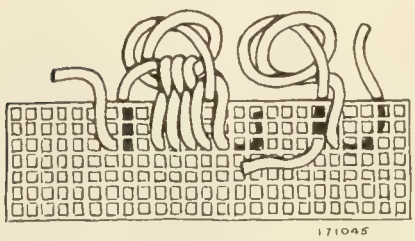

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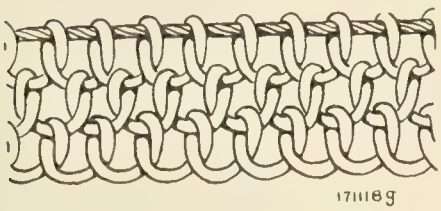

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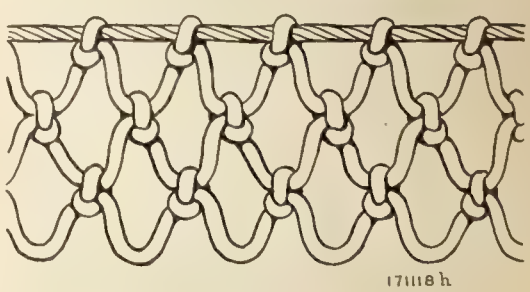

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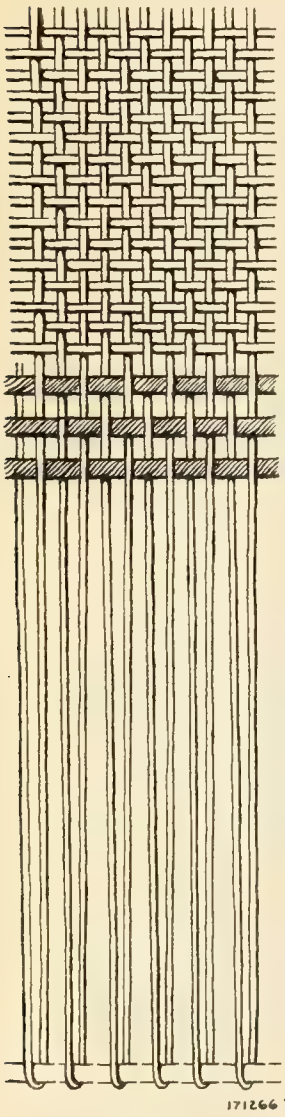

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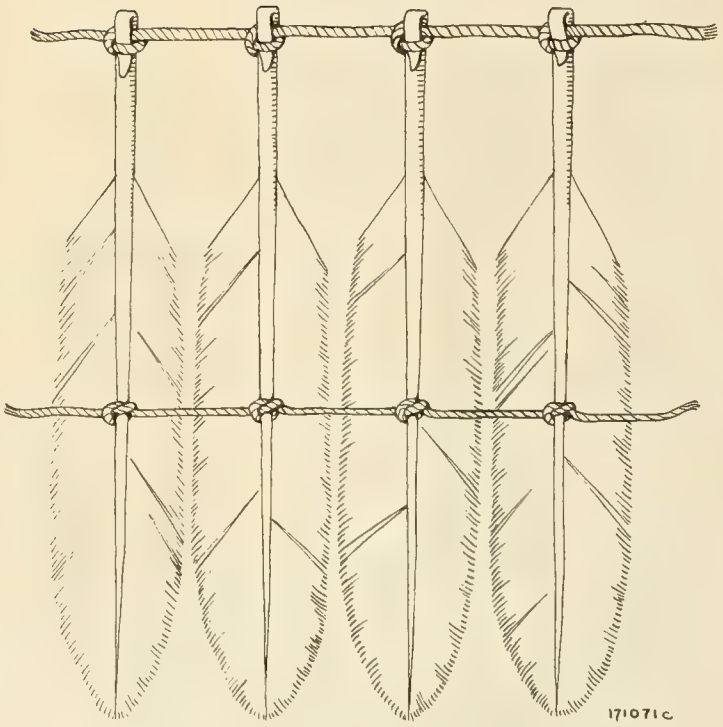

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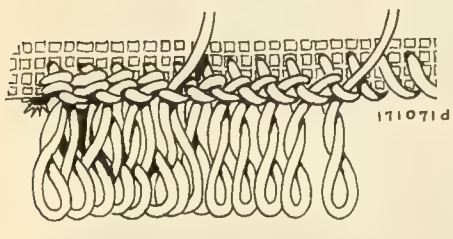

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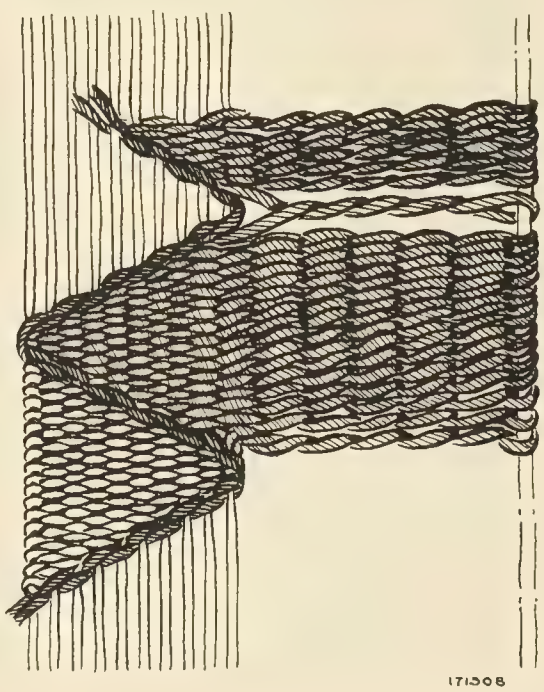

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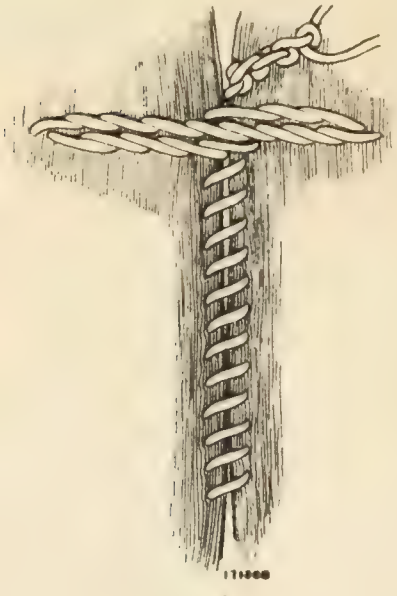
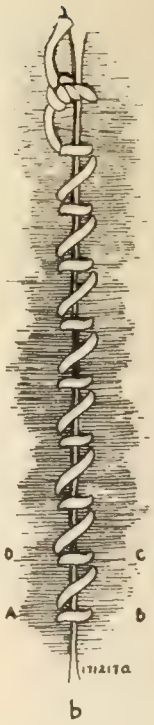
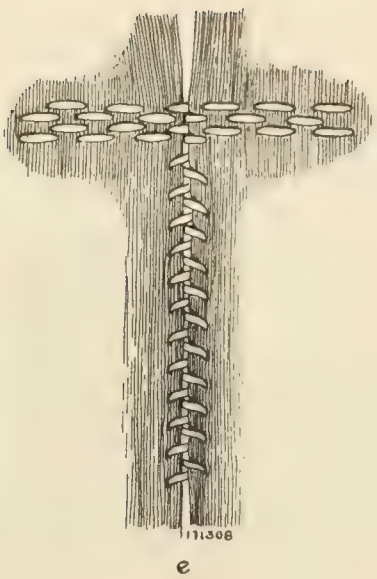
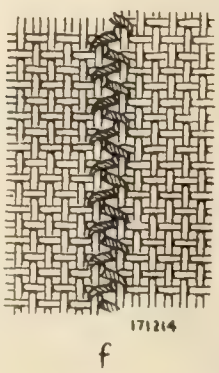
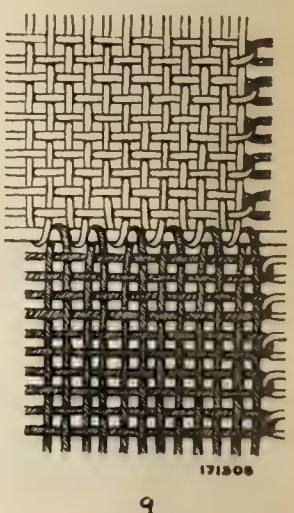
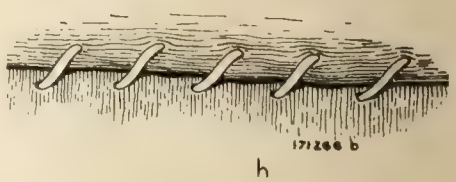


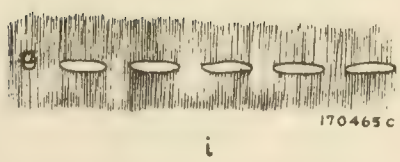


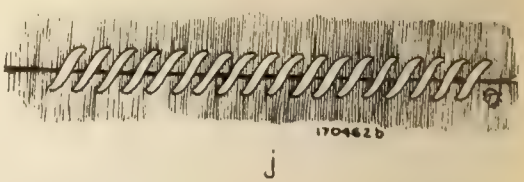




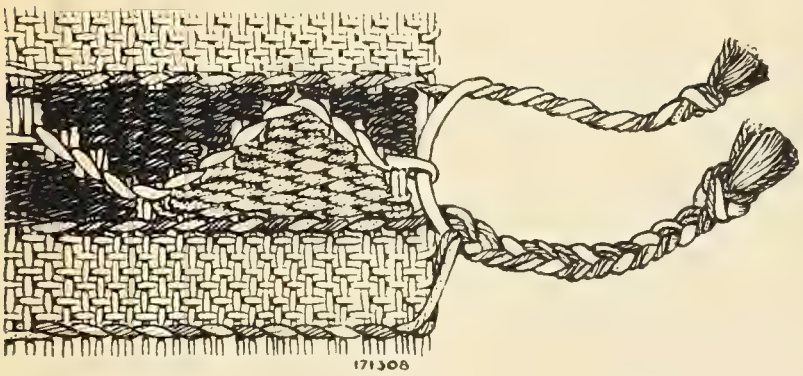








SEAMING STITCHERY TECHNIQUES



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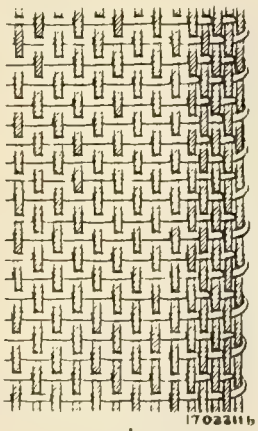

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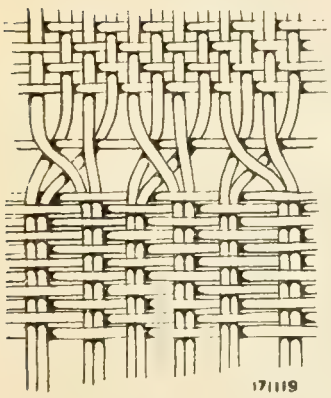

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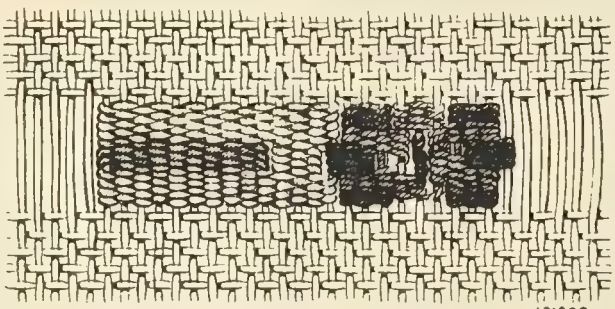

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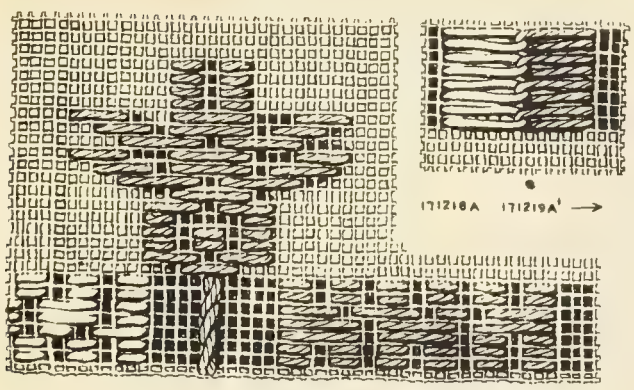

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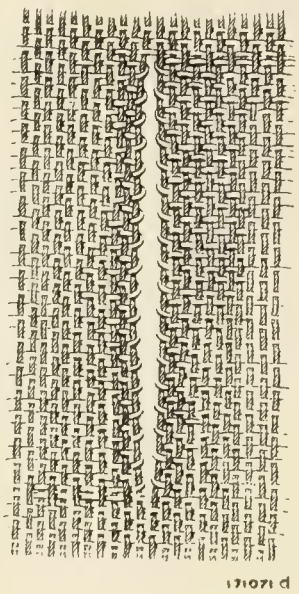

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WEAVING AND STITCHERY DEVICES

FIELD MUSEUM OF NATURAL HISTORY
FOUNDED BY MARSHALL FIELD, 1893

ANTHROPOLOGY, MEMOIRS VOLUME II, No. 4

ARCHAEOLOGICAL EXPLORATIONS IN PERU

PART IV

CAÑETE VALLEY

BY

A. L. KROEBER

PROFESSOR OF ANTHROPOLOGY IN THE UNIVERSITY OF CALIFORNIA
RESEARCH ASSOCIATE IN AMERICAN ARCHAEOLOGY IN FIELD MUSEUM

22 Plates

FIRST MARSHALL FIELD ARCHAEOLOGICAL EXPEDITION TO PERU

PAUL S. MARTIN
CHIEF CURATOR, DEPARTMENT OF ANTHROPOLOGY
EDITOR

CHICAGO, U.S.A.
1937

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LXX. Middle Cañete Pottery from Cerro del Oro. Fig. 1. Conical sieve, NE20-170268.[1] Fig. 2. Double-spout jar, A6a-169666. Fig. 3. Figurine, A13-169687. Fig. 4. Head of figurine, A5a-169792.

LXXI. Middle Cañete Pottery from Cerro del Oro: Low Bowls, with and without Foot. Fig. 1. NNE10-170281. Fig. 2. F21-169741. Fig. 3. F20-169730. Fig. 4. S3-170289 (the other contents of the tomb appear Late, not Middle, in period). Fig. 5. NE1-170242. Fig. 6. S6-170298. Fig. 7. A7-169648. Fig. 8. 169465, from Hacienda San Benito, period doubtful.

LXXII. Middle Cañete Pottery from Cerro del Oro: Plate-shaped Bowls. Fig. 1. NE5-170252. Fig. 2. E-169723. Fig. 3. A1-169618. Fig. 4. F20-169731. Fig. 5. A-169793. Fig. 6. F21-169742. Fig. 7. A6c-169676. Fig. 8. A1-169619.

LXXIII. Middle Cañete Pottery from Cerro del Oro: Double-spout Jars. Fig. 1. NE5-170250. Fig. 2. A8-169654. Fig. 3. A13-169685. Fig. 4. NE1-170243.

LXXIV. Middle Cañete Pottery from Cerro del Oro: Jars. Fig. 1. F21-169739. Fig. 2. NE5-170251. Fig. 3. NE1-170241. Fig. 4. NE18-170256.

LXXV. Middle Cañete Pottery from Cerro del Oro: Small Jars and Bowls. Fig. 1. NNE10-170284. Fig. 2. NNE10-170283. Fig. 3. NE18-170258. Fig. 4. NE4-170248. Fig. 5. A5b-169639. Fig. 6. A1-169613. Fig. 7. A1-169614. Fig. 8. NE1-170244. Fig. 9. F28-169791.

LXXVI. Middle Cañete Pottery from Cerro del Oro: Various Objects. Fig. 1. 169815, figurine fragment. Fig. 2. A6a-169667, disk with hole, painted. Fig. 3. NE20-170269, one of twenty-five tubes. Fig. 4. A7-169651, "elbow." Fig. 5. A6a-169668, small pitcher. Fig. 6. F-169816, fragment of Pan's pipe.

LXXVII. Middle Cañete Pottery Fragments, Bell, and Gourds. Fig. 1. Bx-169833. Fig. 2. Bx-169834. Fig. 3. Bx-169835 (upper, left), Bz-169830 (lower, right). Fig. 4. C-169728. Fig. 5. A16-169697, copper bell. Fig. 6. A16-169698, small gourds.

LXXVIII. Middle Cañete Tombs on Cerro del Oro. Fig. 1. Tombs A1-A3a, plan. Fig. 2. Tomb A3, section and plan. Fig. 3. Tomb A16, sketch view from front, and plan. Fig. 4. Tombs F26-F28 with Late overlay.

LXXIX. Middle Cañete Jars, Basketry, Miniature Shirt, and Maize. Fig. 1. NE20-170266, tall jar. Fig. 2. NE18-170257, low jar. Figs. 3, 4. Tray and pouch of twilled basketry, A16-169692, A12-169710a. Figs. 5, 6. Fragments of coiled and of twined and wicker basketry (not certain whether of Middle Cañete period), Bx-169838, S3-170295. Fig. 7. Miniature shirt, woven, A16-169697a. Fig. 8. Ear of dark red maize, A12-169795.

LXXX. Cerro Azul, Views. Fig. 1. West front of Pyramid B (cf. Plan, Plate LXXXI). Fig. 2. Buried cache, containing 169545-59, as uncovered in Quebrada 1. Fig. 3. Pyramids A and B and northwest cerro. Fig. 4. Pyramids A (left), E, and F, and view on bay between northwest and east cerros. Fig. 5. Eastern or main cerro as seen from the west, showing terracing.

LXXXI. Sketch of Late Cañete (Chincha) Ruins at Cerro Azul.

LXXXII. Late Cañete Amphoras and Jars from Cerro Azul (Fig. 8) and Cerro del Oro (Figs. 1–7, 9). Figs. 2, 4, 9 are red; the others, blackware. The scale of drawing is the same for all; Fig. 9 has an actual height of 248 mm. Fig. 1. C-169725. Figs. 2, 3, 9. C22-169744–46–45. Fig. 4. C-169756. Fig. 5. F-169797, overlying Middle period Tomb F28.

[1] The Museum catalogue number proper is of six figures, beginning with either 169 or 170. Prefixed to this, for convenient orientation, is a letter, such as A, B, NNE, indicating the sub-site or cemetery, usually followed by the number of the grave in which the specimen was found. Thus NE20-170268 means that the catalogue number of the specimen is 170268 and that it was found in grave 20 of the Cerro del Oro cemetery designated as NE. Cemeteries A, B, C, D, E, F were excavated by Kroeber, NE, NNE, SE, S by Hurtado.

Fig. 6. Flat canteen, C-169754, near Tomb 22. Fig. 7. C31-169855. Fig. 8. 169585 from Burial 4, at mouth of Quebradas 8-8a, Cerro Azul.

LXXXIII. Late Cañete Jars and Spindle Whorls and Middle Period Whorl (Fig. 21); from Cerro Azul (Figs. 1–3, 7, 13, 15, 16, 20) and Cerro del Oro (Figs. 4–6, 8–12, 14, 17–19, 21). —Jars all drawn to one scale; Fig. 8 is 140 mm. high. Whorls double scale; Fig. 17, 19 mm., Fig. 21, 42 mm. Figs. 1, 2, 3, 13, 15. 169522–20–21–17–23 from Burial 1, Quebrada 2, Cerro Azul. Fig. 7. 169591, Burial 4. Fig. 16. 169561a. Fig. 20. 169499, Pyramid D, Cerro Azul. Figs. 4, 19. C24-169778–73. Figs. 5, 12. 169764–52, near C-22. Fig. 6. F29-169840. Figs. 8, 9, 10. C31-169858–57–56. Fig. 11. C23-169767. Fig. 14. C22-169747. Fig. 17. 169772. Fig. 18. 169799, above F28. Fig. 19. C24-169773. Fig. 21 (only Middle period specimen). NE1-170245b.

LXXXIV. Late Cañete Pottery. Fig. 1. 169541, handle and design of large broken jar, Burial 3, west front of Pyramid B, Cerro Azul. Fig. 2. 169807, similar design and modeled head, Hacienda San Benito, gift of Don Luis Nosiglia. Fig. 3. 169485, perforated sherds, strung together, from fill in Pyramid H, Cerro Azul. Fig. 4. C31-169854, Cerro del Oro, same scale as Plate LXXXII, 364 mm.

LXXXV. Late Cañete Cloth, Balance, Carving, and Figurines. Fig. 1. Painted gauze, headband, 169508, from Quebrada 1, Cerro Azul. Fig. 2. Balance, 169544, beam 167 mm. With Fig. 4 and Plate LXXXIV, Fig. 1, in Burial 3, west front Pyramid B, Cerro Azul. Fig. 3. Stone figure, 34 mm. high, 169493, Quebrada 6, Cerro Azul. Fig. 4. Carved wooden tablet, 85 mm. long, 169542, found with Fig. 2 and Plate LXXXIV, Fig. 1. Fig. 5. Pottery figurine, 169726, Site C, Cerro del Oro.

LXXXVI. Objects from a Late Cañete Cache Buried at Cerro Azul. All numbered 169545. Fig. 1. Receptacle made of skunk skull. Fig. 2. Half univalve shell. Fig. 3. Wooden labret. Fig. 4. Comb. Fig. 5. Stone pendant or weight(?). Fig. 6. Stone carving, two heads. Fig. 7. Carving, human figure with load(?). Fig. 8. Two wound spindles. Fig. 9. Two needles, of silver (above) and wood (below). Fig. 10. Two spine needles, lower with cotton. Fig. 11. Bone awl. Fig. 12. Four painted spindles with colored pottery whorls. Fig. 13. Spindle(?) with loose head. Fig. 14. Cane flute.

LXXXVII. Further Objects from the Late Cañete Cache at Cerro Azul. Figs. 1–4 numbered 169548. Fig. 1. Part of wooden chain or necklace. Fig. 2. Net bag of maguey fiber. Fig. 3. Net cylinder of maguey fiber, with pattern; Fig. 3a. Mesh detail. Fig. 4. Lunate knife, probably bronze. Fig. 5. Bone awl on cord, 169553q. Fig. 6. Cut wooden peg(?), 169546.

LXXXVIII. Middle Cañete Textiles from Cerro del Oro. Figs. 1, 1a. Plain weave on cylindrically wound warp, A16-169702. Figs. 2, 2a. Multiple parallel twining, A9-169660. Fig. 3. Finish, one-loop needleknitting. Fig. 4. Tie-dyeing on plain weave, NE18-170262a.

LXXXIX. Middle Cañete Textiles from Cerro del Oro. Fig. 1. Plain weave pouch stuffed with coca, A16-169698g. Figs. 2a, 2b, 2c. Plain weave with interlocking warps and wefts on scaffold wefts, NE18-170322.

XC. Middle Cañete Textiles from Cerro del Oro. Fig. 1. Wool wrapping on fibers, NE18-170262e. Fig. 2. Sling, A16-169700. Fig. 3. Fragment of garment, half-basket plain weave, A12-169678a, and herringbone twill, A12-169678b.

PREFACE

This paper is a third report on my expeditions to Peru for Field Museum of Natural History in 1925 and 1926. The first two dealt with the Northern Coast. The present report deals with Cañete Valley, some 80 miles or 130 kilometers south of Lima. Cañete is an important valley, by no means deficient in imposing ruins, but has been very largely overlooked by archaeologists.

My work there was conducted during April and May of 1925; at first in person, at Cerro Azul and Cerro del Oro; and later through a joint expedition of Field Museum and the University of San Marcos, Lima, of whose Archaeological Museum Dr. J. C. Tello had charge. This joint expedition was in charge of Sr. Antonio Hurtado, who continued, with my crew of workmen, the excavations which I had begun on the Cerro del Oro. The collections were divided between the two institutions so that the contents of each tomb remained intact.

ARCHAEOLOGICAL EXPLORATIONS IN PERU

PART IV

CAÑETE VALLEY

I. AREA, SITES, AND CULTURES

Cañete is a large valley as Peruvian coastal valleys go, but contains no town of much consequence. The Cañete River has a large catchment basin, whose head meets that of the Rimac, the stream that waters the valley of Lima. The intervening streams all head lower in the mountains and have a very much smaller flow. The intervening valleys therefore contain much less irrigable land than either Lima or Cañete. In fact, the Cañete is the largest Peruvian river, in point of average run-off, south of the Santa. The next adjoining valleys south of Cañete, namely, Chincha, Pisco, Ica, and Rio Grande (Nazca), are traversed by smaller streams, and, although better known archaeologically, may have sustained no larger population.[1]

The Cañete River maintains a considerable flow to its mouth at all seasons. With the heavy rains of the beginning of 1925, the one bridge across it was washed away, and a number of weeks elapsed before the current had subsided sufficiently that automobiles could be dragged across a ford by oxen.

There are a number of well-known groups of ruins in Cañete Valley, such as Cancharí, Hungará and Hervay; and, farther upstream, above the coastal valley proper, Lunahuaná.

While I visited several of these, my work was done at two sites, Cerro Azul or "Blue Hill," and Cerro del Oro or "Gold Hill."

The former is an imposing cluster of pyramidal ruins set immediately back of the modern port of Cerro Azul, the harbor of the valley. These ruins are fitted into a pocket of desert hills and are not visible from the harbor nor from the cultivated lands to the south and inland. They have been much dug over superficially, but apparently the yield of treasure was small, since there is no large-scale destruction of monuments. So far as my observations go, there is only one culture represented at Cerro Azul, this belonging to the Late period, more or less synchronous with the Inca dominion, though no doubt partly antedating it. This Late Cañete culture is very similar to the Late Chincha culture described by Uhle, Strong, and myself.[2]

The Cerro del Oro is a nearly free-standing hill about four kilometers inland from Cerro Azul. It is connected at the northeast by a low saddle with hills beyond; but on all other sides it is surrounded by ditches and cultivated lands. A fraction of a kilometer to the southeast of the hill stands the town of San Luis, or old Cañete, which may represent the

[1] The exact figures are compiled in No. 2 of this volume, p. 76, 1930. The annual run-off in millions of cubic meters is: Santa, 5,100 (catchment basin, 11,500 km.²); Cañete, 2,200 (5,200 km.²); Pativilca, 1,600; Huaura, 900 (3,400 km.²); Pisco, 900 (4,300 km.²); Rimac, 900 (2,500 km.²); Chancay, 600 (2,200 km.²); Mala, 500 (1,800 km.²); Chincha, 400 (2,200 km.²); Ica, 300 (1,500 km.²). The areas irrigated, of course, depend as much on the conformation of the land as on the volume of the stream, and thus correlate imperfectly. In hectares irrigated, Ica, with the smallest stream of those considered, heads the list: 20,000. Then follow Rimac, 18,000 hectares; Cañete, 14,000; Chincha, 14,000; Pativilca, 12,000; Pisco, Huaura, and Chancay, 10,000 each; Santa, 5,000; Mala, 4,000. In general, the northerly valleys have the larger streams, the southerly ones more land that is easily brought under water. Roughly, coastal population size may be estimated as proportionate to irrigable area, especially in prehistoric times. By this gauge, Lima, Cañete, and Chincha would have been the most populous valleys between Chicama and Ica.

[2] Univ. Calif. Publ. Amer. Arch. Ethn., vol. 21, Nos. 1, 2, pp. 1–94, 1924.

site of an ancient settlement whose inhabitants used the hill for their cemeteries. The hill itself contains no remains of non-funerary structures of any note; nor are there pyramids or other buildings of consequence in the immediate vicinity.

Two cultures are represented in the many thousands of burials that have been made on the Cerro del Oro. One is the Late Cañete or Late Chincha culture just mentioned as occurring at Cerro Azul. The other is an earlier culture which I have provisionally called Middle Cañete. It is the earlier of the two by its stylistic affiliations. Also, I succeeded in finding a stratification in which Middle Cañete burials were overlain by Late Cañete grave material. As a stratification this was not a very impressive example, but, as I have previously pointed out, thoroughly good stratifications are either unusually rare in Peru or very difficult to discover.

The Middle Cañete culture is characterized by skulls deformed fronto-occipitally; structures of small cubical hand-made adobes; a scarcity of metal; and by pottery and textiles which show some Nazca influence, but no direct Tiahuanaco influence. The Nazca elements in the pottery are all of Late Nazca type. They are what Gayton and I have called the Nazca Y phase of that[1] culture, but without the Tiahuanaco element which in the Valley of Nazca itself is found in association with Nazca Y remains. On the other hand, there are occasional traits of Middle Cañete pottery, both in design and shape, which suggest or anticipate later Peruvian styles of the coast; Late Ica especially.

The place of the culture in the Peruvian time scale is, therefore, not one which I should wish to fix with much positiveness—it looks both post-Early and pre-Late. This is the general era of Tiahuanaco elements on the coast; but the absence of these at Cañete, at any rate in the materials so far known, prevents a precise, positive chronological tie-up with other Middle period cultures of the central and southern coast.

It may be that search farther upstream, as at Lunahuaná, will reveal the intrusion of highland influences in Cañete, as in nearly all other coastal valleys. Even if so, however, it is rather remarkable that the culture which I encountered on the Cerro del Oro should be so free from evidence of highland influences. Evidently this influence established itself in quite different degrees of strength in different coastal valleys.

I ought to add that the Middle Cañete culture is not merely a mixture of terminal Early elements and anticipations of Late ones, but contains a series of distinctive stylistic traits peculiar to itself.

[1] Univ. Calif. Publ. Amer. Arch. Ethn., vol. 24, No. 1, pp. 1–46, 1927; see especially pp. 26–33, Plates 12–17.

II. CERRO DEL ORO: MIDDLE CAÑETE CULTURE

THE HILL AND ITS STRUCTURES

Apparently the Middle Cañete people covered nearly every part of the surface of the Cerro del Oro with their cemeteries. These consist of series of terraces rising up the slope of the hill, the terraces being held back by walls of adobes. Frequently there are several walls on nearly the same level. Occasionally, transverse walls were added and building carried a few meters higher, resulting in low, flat-topped pyramidal structures about the size of a small house or large room.

At a subsequent time the people of the Late Cañete-Chincha culture used part of the hill for their cemeteries. They concentrated especially on the southeastern slope, the one that overlooks the town of San Luis. Here they constructed a large walled cemetery, and buried not only within it but over considerable stretches on both sides and below.

These Late cemeteries have been almost completely sacked. The ground has been thoroughly torn up and is still pitted with what look like shell-holes. This work would not have been performed except in the hunt for silver and gold, and would not have been as thorough as it was unless the yield had been encouraging. It may be assumed, therefore, that the hill derives its name from the exploitation of these Late cemeteries.

Over other parts of the cerro, where Late graves are few, there has been less plundering, and whole series of intact Middle Cañete tombs are not difficult to find. Because of the lack of precious metal the treasure hunters have not been tempted.

That this is the outline of the story of the use of the hill is indicated by two facts. First, practically all tombs or other structures on the hill, whether Middle or Late, are built of the small cubical hand-made adobes. Such adobes are definitely associated elsewhere, as in Lima Valley, with the Middle period of Peruvian prehistory, and are not known to have been used in Late structures anywhere on the coast from Lima to Nazca. It looks, therefore, as if the Late Cañete people had mainly destroyed Middle period tombs and built their own out of the materials of their predecessors. In this way the fact is also accounted for that the débris in and about the churned-up soil of the walled Late cemetery contains a minor percentage of characteristic Middle type sherds. By contrast, the surface débris on other sides of the hill, such as the northeastern, which is overwhelmingly of Middle period type, contains a minor scattering mixture of Late fragments, due no doubt to the intrusion here and there of Late period graves.

I do not know of an available map of the Cerro del Oro. Neither Hurtado nor I was equipped for mapping even of an approximate kind. We independently sketched the outline of the hill from having walked over its parts many times. The two maps as brought together in Plate LXIX, Figs. 1 and 2, show no great degree of correspondence, I must admit. However, my sketch is avowedly only diagrammatic. Most of my excavations were made on the higher, gentle slopes, and I disregarded the numerous quebradas or gullies at the foot, noting only a few which were of significance with reference to my excavations. Hurtado, on the other hand, noted the indentations in the perimeter of the hill, and perhaps exaggerated them. Allowing for this difference, our two maps probably vary mostly in that the relation of length and breadth of the hill is inverse. As regards this ratio of the length and breadth diameters, I feel that my sketch is probably more nearly accurate than his, just as his is superior in giving the actual course of the outline.

In any event, part way up the hill the slope in general becomes gentler, and a considerable area on top is almost level. In the center of this level area stands a small ruin (R) with considerable of its walls still intact. This is the only conspicuous building on the hill, and is rather small at that.

More or less to its west, near the head of the gully which has eaten from the north or northwest up into the level top of the hill, is another ruin, which is a pyramidal rather than a walled structure. This has been trenched through. Down the same gully a little distance are retaining walls (B), more or less crumbled. These seem to constitute the front of small pyramids or terraces facing the gully.

On the opposite southern or southeastern side of the hill, two gullies which enter its outline contain Chinese cemeteries. The more easterly, near the Hacienda Casa Blanca, is that of the "esclavos" or indentured coolies brought to Peru in the earlier part of the nineteenth century. The other, more westerly and toward San Luis, is that of the more modern Chinese. At the edge of the latter stands a crag against which a flat-topped pyramid or terrace has been built (D).

LATE CEMETERIES

Other ruins or traces of ruins occur on various parts of the hill, but none of them are of much moment except for a large walled cemetery (WC). This walled cemetery was evidently constructed and certainly used by the people of the Late or Chincha culture. It is on the southwestern half of the hill, on the side directly overlooking San Luis. The quadrangular enclosure I estimated at about 400 x 250 feet, or say 125 x 75 meters, the long axis corresponding with the long axis of the hill. On the two northerly sides the enclosing wall is double, with a sort of street between. This sort of street is found in Late constructions at places as far separated as Pachacamac, Armatambo in Lima Valley, and Chanchan in the north. The southeastern and southwestern walls are single.

In spite of some evidence of crumbling at the top of the enclosing walls of this cemetery, 45 courses of adobes can still be counted, in places, from the present top to the beginning of the talus at the foot of the wall. This exposed wall-face I estimated at about 5 meters high at the maximum point. This figure corresponds well with the size of the adobes, which I calculated to average about 9 cm. in thickness. With 2 cm. additional allowed for mud mortar in each course, the 45 courses would aggregate close to 5 meters. If to these 5 meters are added allowances for the foot of the wall now covered by talus, and for loss through crumbling at the top, the original height of the enclosing free-standing wall may be estimated at around 7 meters.

In the north corner of this quadrangle are some large rocks which apparently interfered with burials. All the remainder of the quadrangle must have been densely filled with burials, enough of which contained precious metals to make the thorough sacking of the cemetery profitable. The largest excavation pits are about 5 meters deep and 10 meters or more in diameter, and there are more which measure 3 meters in depth and 5–7 meters across. Among the churned soil and adobes from the tombs is a mass of cultural débris: abundance of white cloth from body wrappings, and sherds, mostly of a rough red ware; but, as will be shown, plain red or plain black ware is characteristic of the Cañete form of Late Chincha culture. Coarse white cotton cloth wrappings are characteristic of Late burials all along the Peruvian coast.

The skulls that lie about this plundered cemetery are nearly all natural in shape; that is, undeformed, except perhaps for minor unintentional flattening of the occiput. This trait again is characteristic of the Late period on the coast.

Some of these skulls show another trait which is widespread in the Late period: green stains around the jaws or occasionally about the ears. This green stain is the result of copper or sometimes silver ornaments attached to the head. Most frequently a thin disk or small sheet of the metal appears to have been put into the mouth of the corpse, the stain, therefore, being strongest on the inner side of the jaws and palate. Along the entire coast, so far as I know it, these green stains on skulls are a convenient and almost invulnerable criterion of lateness. They are especially convenient because treasure hunters and even pot hunters invariably throw out bones, unpainted pottery, and unpatterned cloth. Undecorated cloth and pottery fragments are often difficult to identify with positiveness as to period; but skulls last longer on the surface than other bones, and the stains frequently suffice to tell the tale of cultural age.

This walled cemetery also contains some sherds characteristic of the Middle Cañete culture. These, however, constitute only a minute fraction of the total. They suggest that this part of the hill contained a certain number of Middle period burials, which were broken up when the Late people founded their more ambitious graveyard.

The walled cemetery is only part of an area of Late or Chincha burials. These extend both downhill from the enclosure and to its left as one stands looking down on the town of San Luis; in other words, in a general easterly direction from the enclosure more or less to the foot of the hill. This entire area I have called site C.

More or less on a level with the walled enclosure in the unenclosed part of the C area are about five terraces. The retaining wall of the highest of these terraces rises flush with the almost level natural top of the hill. Above this there appear to be no burials; they begin at its foot and continue through the lower terraces. Here also there are enormous excavation pits, and the same type of surface débris shows, although the sacking appears to have been less complete than within the enclosure, with the result that an undisturbed burial can still be found here and there.

Site D is really nothing more than the eastern end of the area which I have designated as C, namely, the portion of it which lies close to the truncated pyramidal ruin by the modern Chinese cemetery. Here I succeeded in finding one or two Middle period graves. Apparently the disturbances by Late grave diggers and subsequent Caucasian treasure hunters were less on this periphery than over most of the C area.

The area of Late graves continues westward from the walled cemetery, or to the right as one looks down from the hill, toward or even beyond the end of the long axis of the cerro. This area I have called site F. Here there are mainly low walls, now buried, which formed terraces of small elevation. In this F area, Late burials are most in evidence, but Middle burials also occur. It was in this site that the one stratification occurred which I was able to discover. Plate LXXVIII, Fig. 4, sketches this stratification. The Middle period graves were rather shallow; the Late interments seem not to have been vertically above them but somewhat uphill, even more shallow, and without walling of the tombs. Evidently with the slow denudation of the surface of the hill some of the Late interments gradually slid somewhat downhill, until the one I discovered lay directly over Middle period tomb F-28 (Plate LXXVIII, Fig. 4). The overlying Late material was neither intact nor plundered; it had quite evidently slipped or worked down the slope a certain distance without disturbance by human agencies.

I admit that this is the sort of stratification about which one is more inclined to feel apologetic than proud. However, I can only repeat that clean-cut stratifications either are very rare in Peru or we have not yet learned how to look for them. Obviously a stratification of graves is likely to be less convincing than a stratification due to the accumulation

of rubbish. There is plenty of the latter in Peru; every workman recognizes *basura* (refuse). But, in almost all instances, the rubbish appears to have been carried and dumped as fill where it is found. Moving and piling up quantities of earth in the form either of solid masses of adobe bricks, or of adobe walls containing loose fill, appears to have been one of the prevailing occupations of the ancient Peruvians; at any rate, those of the coast. This habit makes the task of the modern archaeologist no lighter, and is one of the causes of our having laboriously to reconstruct the sequence of cultural events by inference, instead of being able to point with satisfaction to a neat, clean, ready-made stratification.

MIDDLE PERIOD CEMETERIES AND TOMBS

On the whole, the parts of the hill which prove most productive of Middle period remains are those on its northeastern half; that is to say, the rather gradual slope from the central level area toward the end of the cerro which is more or less connected with the hills to the east and north.

This general Middle period area I have called A, and it includes Hurtado's NE and NNE sites. Here there extends a long series of walls more or less parallel to one another, and horizontal, that is, transverse, to the slope of the hill. Some of these walls project slightly above the surface, others are entirely covered, and some buried several meters deep. How far the walls were below the surface when they were constructed, or how far they have been subsequently covered by decay of the surface, I found it hard to decide. Mainly it would seem that they were originally sunk into the ground; but they are probably more covered now than when they were built. In a broad sense, these series of walls may be construed as retaining walls for terraces in which burials were made. However, this description can be accepted only with reservations.

The general effect of the surface in this A area is that of a series of low and much denuded terraces, but the parallel walls are sometimes only a meter or two apart, and occasionally two or more walls are in actual contact. Here and there cross-walls appear, and the walls as a whole do not form a regular or connected system. They vary from 2 or 3 to more than 10 meters in length, with gaps between their ends as irregular as the spaces between parallel walls. Here and there the cross-walls are better developed, and the result is a small truncated pyramid or cubical walled space, mostly or wholly underground.

In general, the purpose of the walls seems to have been to serve as a basis for the construction of tombs. Most frequently, these tombs are built against the wall, at its foot. Sometimes they form a niche or recess in the wall, or occasionally are entirely within it.

The Middle period tombs are built of the usual adobes. Their floor size varies from about 30 x 30 cm. to 100 x 150 cm. or even larger. The interior height is normally not far from 60 cm.; in other words, sufficient to accommodate a seated, crouching body, with the head pushed between the knees. Children's tombs may be lower; they are often smaller.

The occasional large tombs are from 80 to 110 cm. high, with one found rising to 140 cm. The ordinary tomb is not far from cubical. The depth of the grave, as measured from the surface of the ground to its *roof*, ranges from a fraction of a meter to nearly 3 meters; but most frequently it is in the vicinity of a meter or a little more. (In the tables, depth is the distance from the *tomb floor* to the surface.) The tombs are, therefore, neither very deep nor difficult to reach. Their approximate location is often indicated, after a little experience, by the surface contours, which indicate the tops of walls. Hurtado was more meticulous than I in consistently designating tomb measurements, and I therefore list his figures in condensed form in Appendix III.

That so many of the tombs remain undisturbed is evidently due to the fact that trial soon showed that they contained no metal, in fact, usually not even showy pottery vessels.

The roofing of the tombs is peculiar. Not uncommonly the roof consists of the same small cubical adobes of which the walls are built. These roof bricks are simply joined with mud mortar, like a pavement, except that they hang free, with soil above them. In some cases the roof has been crushed in, in others it remains intact. This means, of course, that the mortar acted as a kind of cement, binding all the adobes of the roof into a monolith. This must have been allowed to dry out firmly before the tomb was recovered with soil. Obviously this construction would not be strong enough to support its own weight, let alone that of superimposed fill, over any large span. It was generally used without further reinforcement only where the smaller diameter of the tomb could be kept down to 60 or 70 cm.

For instance, tomb A-16 of my own excavating had an interior floor area of 110 x 80 cm. (Plate LXXVIII, Fig. 3). The walls were built up 80 cm. high, all of adobes except for the front wall, which was adobes mixed with stones. Across the breadth was laid a beam somewhat in front of the middle of the length of the chamber. From this beam forward, the roof was of stone slabs. From the roof to the surface of the ground was 110 cm. On the tomb's small floor area of less than a square meter were set six bodies, as shown in the illustration. None of these had the head bent down between the knees. This appears to be the reason for the above-average height of this tomb interior.

Another roofing method occasionally used was to arch the outer wall over the tomb until it met the heavier retaining wall against which the tomb was built. The roof, therefore, forms a half vault. Hurtado and I each encountered a case of this kind (Plate LXXVIII, Fig. 2). There is no question of an approach to a true arch: the roof span is not supported by the shape or placing of the blocks so much as by the mortar tying it into a unit. At that, this type of roof, curve-sloping instead of level, and leaned against a higher and larger wall, would presumably resist pressure from above better than the more frequent flat roof.

Three of the largest tombs discovered by Hurtado are described by him as having gabled roofs. These are NE-12, NE-18, and NE-20. In this case the width ranged from 75 to 100 cm., and the roof was formed of adobe slabs approximately half a meter long and from one-fourth to one-third meter wide (exact figures in Appendix III). Hurtado's notes do not mention a wooden ridge-pole, so I assume that the two rows of adobe slabs were leaned up against each other like pairs of cards in a card-house.

The size of the Middle period tomb seems to have had little relation to the number of bodies it contained. Hurtado's three large gabled tombs each contained only one body, except that his NE-18 also held body 19, that of a child, in a niche. He also described his bodies NE-2 and 3 as found in one recess; otherwise, in 38 cases, he discovered one mummy to one tomb. My seven small tombs at site F also contained only one body each. However, 21 tombs opened by me in area A (which includes Hurtado's NE and NNE) contained 37 bodies or parts of bodies. The distribution of these is shown in Appendix II.

As for massive retaining walls, as distinct from tomb walls, Hurtado's measurements of several groups of these are also given in Appendix III. His figures correspond with my observations and more scattered measurements. The most significant feature is undoubtedly the randomness of height, thickness, and disposition of walls. A higher wall may be thicker, but it also may be thinner. Parallel walls, evidently belonging to the same system, may be in contact or more than 3 meters apart; their length may be equal or different. These retaining or terracing or boundary walls within the cemetery are generally 4 or 5 bricks of adobe in thickness; but this number also varies. The ordinary tomb wall consists mostly of a single thickness of brick.

The cubical adobes of the Cerro del Oro I estimated to average 12x9x9 cm. This is about halfway between the sizes which Hurtado reported as most frequent, i.e., 14x14x10 and 10x10x7.5. Some other of his figures are given in Appendix III. It will be seen that mostly he gives two dimensions the same, and the third smaller; whereas my generalized observation made the third dimension larger than the two equal ones. This difference shows the desirability of recording actual measurements on a sufficiently large series of samples, rather than near-estimates or impressions. However, the bricks are more irregular than measurements would indicate, their surfaces being uneven.

The adobes are not only made by hand but roughly made. In spite of their consistent approximation to a near-cubical form, they are really not very far removed from Uhle's "fist-lump" adobes as he encountered them at Chincha and Pisco. They do not regularly taper, as do many of the sub-conical adobes in Nazca (Tello's odontiform). But if one end of the Cañete brick is smaller by reason of slovenly manufacture—and this frequently happens—the small end is laid inside the wall. The bricks are smaller than the Proto-Lima (better, Middle Lima) bricks at Aramburú. I noted specifically that they are square as seen from the end, in contrast with those at Aramburú. This observation corresponds with my memorandum of average proportions of around 12x9x9 cm. for the Cañete adobes.

In any event, however rough their form, the texture of the adobes is excellent. They are hard and difficult to break. This rather fits in with the suggestion already advanced that the Late or Chincha population to considerable extent re-used adobes made in Middle Cañete times. The laying of the adobes is good enough, considering the irregularity of size and form. Obviously they had to be embedded in considerable quantities of mortar to take up the unevenness; equally obviously, the thickness of the mortar between bricks is also variable. This mortar, as usual in coastal Peru, is nothing but mud of the same clayey soil of which the adobes have been made by previous drying in the sun.

MIDDLE CAÑETE POTTERY

STANDARD FORMS

It seems best first to describe the several types of Middle Cañete pottery, and then to discuss their relations to other Peruvian cultures.

Conical Sieves.—Plate LXX, Fig. 1, is an example of this type, which, so far as I know, is new to Peruvian archaeology. The specimen shown is 22 cm. high and 13.5 cm. in diameter. The upper edge is turned in an inward lip. The outer rim is painted black, or rather dark reddish brown. The walls are thin. The perforations, which were evidently made with a spine, needle, or straw, have been carefully smoothed of pushed-through clay on the inside. The pricking instrument appears not to have followed any very regular course. The unbaked vessel was evidently set with its pointed end up: the prod of the punch was then directed downward. The perforating evidently began at the top, a couple of centimeters from the point; the rows of holes mostly follow vertical lines, though these are by no means straight. When the perforations had been carried over most of the surface which was to remain unpainted red, three horizontal rows of holes were punched.

While these sieves are not exactly abundant, they occur with fair frequency. Besides the one figured, which was excavated by Hurtado, I found two in graves, 169662 in A-10 and 169673 in A-6. Many fragments were also found on the surface and in débris. All these indicate identical shape and banding, except that one fragment, included in 169819, has four narrow stripes of black instead of a single band. Apart from the thickened angle at the rim, the ware varies from about 2 to 4.5 mm. in thickness. The holes are from 2 to 8 mm. apart between centers. Where the holes are small they are usually also close, and sometimes

arranged in regular rows horizontally and vertically. Larger holes are spaced more widely apart. Some of the fragments are thoroughly smoothed inside as well as out; these are usually pieces with many and fine holes. Others are not smoothed on the interior, each perforation remaining surrounded with the little rim of clay that has been pushed through. Such roughness as has been allowed to remain is always on the inside. Also, the punching strokes seem invariably to have been slanted downward from the outside, as the vessel sat on its rim.

It is clear that these cones would hardly have served adequately to sift anything solid, but that they were used for straining water or *chicha*. Sprinkling is also a possibility, but hardly probable: on trial, the cone fails to scatter water. At any rate, a ritual use is suggested. This agrees with the limited geographical distribution of the form. A chiefly utilitarian vessel would hardly have remained confined to a single valley.[1]

Low Bowls with Foot.—I secured four low, footed bowls: in F-20, F-21, F-28, F-30; and Hurtado found one each in NNE-10 and S-6. There are also many fragments of feet. The variation in shape and painted design is shown in Plate LXXI, Figs. 1–4, 6. Three of these are painted with red and black on the whitish outer surface; one has merely a black rim, like the conical sieve; and the fifth is uncolored, except for a red slip somewhat darker than the pale red of the body of the vessel. The outer wall ranges from vertical to well incurved. Fig. 6 is somewhat aberrant, in that the side wall is virtually reduced to an incurved lip, but the bottom rises more than in the others. The size ranges from 15 to 25 cm. in diameter; the height from 4 to 8 cm. The foot varies less than the bowl. It runs pretty uniformly from 7 to 8 cm. in diameter, more rarely up to 9. Its height is from 0.5 to 1 cm.

When these bowls are painted, it is with rather small designs; mostly not especially reminiscent of any one Peruvian pottery style.

However, the shapes definitely recall the style of Middle and Late Ica, especially the latter, in general flatness, sharpness of angle, and vertical or incurved rim.

Low Bowls without Foot.—These are about as numerous as the footed specimens, but usually smaller; ranging from about 10 to 20 cm. across. The walls may be vertical or rounded inward: Plate LXXI, Figs. 5, 7. A design is applied or omitted about as often as in the footed bowls. The plain samples are likely to have the inner side washed with dark red or purplish brown. Rim fragments can usually not be distinguished as coming from bowls with or without foot.

Plates or Cumbrous Bowls.—This is a typical Middle Cañete form, ranging from a shallow flaring bowl which is almost a plate to more massive and deeper ones, which, however, also flare into a gradual curve. The former have a diameter four or five times that of the depth; the latter, three times; but the two extremes intergrade. The ground color is red, the design generally black; sometimes also white. The black may be replaced by a purplish metallic maroon. Occasionally the inside of a plate is simply washed over with this purple (Plate LXXII).

In graves these plates are sometimes set on the floor of the tomb, but frequently one of them has been laid inverted over the mummy's head, like a hat.

In general type of shape and design these low bowls or plates obviously are related to the type which Kelly has described as "cumbrous bowls."[2] They are, it is true, less heavy than most Peruvian cumbrous bowls, and in their extreme form they are shallower. Their

[1] I found a small fragment of one of these sieves (169883) in Mala, the second valley north of Cañete, in one of several great heaps of débris near the buildings of Hacienda Salitre. This is the most northerly specimen known to me which can be connected with the Middle Cañete culture.

[2] Univ. Calif. Publ. Amer. Arch. Ethn., vol. 24, No. 6, pp. 325–341, 1930. Cf. Figs. 67–70 for Cañete.

designs are also related to those of typical cumbrous bowls, especially in the use of segments or arcs and stepped triangle figures along the rim. The Middle Cañete bowls, however, go farther in this design, in that the main area between two opposite segment or arc figures is filled with stripes parallel to the segments; thus, Plate LXXII, Figs. 3, 5, 7. This tendency toward parallel striping is perhaps their most characteristic design feature.

A few of the bowls thicken toward the top, and then bevel off toward the edge. Such are Figs. 1 and 2. It will be seen that in these cases the design is confined to the annular rim bevel. Fig. 4 shows a related pattern, but without thickening or bevel. Fig. 6 also restricts the design to the rim; in this case there is no relationship to the beveled pieces.

Kelly's finding is to the effect that Peruvian vessels of this type, whenever their period is known or can be inferred from definite stylistic resemblances, are of Tiahuanacoid or later time, but in no case yet discovered earlier. The Cañete plate-bowls are sufficiently similar to the cumbrous ones from elsewhere to make it seem highly probable that the Middle Cañete culture to which they belong cannot well be much earlier than Tiahuanaco. On the other hand, Kelly has also shown that the general type persisted in some areas, such as Ica and Nazca, with relatively little change from Tiahuanaco to Incaic times. Consequently, the Cañete bowls do not necessarily limit the culture to Tiahuanaco (medieval Peruvian) time.

Small-mouthed Jars.—These were found occasionally, and in two sizes. The larger ones are from 30 to 35 cm. in height, nearly as much in diameter, and with a mouth generally under 10 cm. across. The mouth rises from 3 to 5 cm. and is usually vertical walled, although one specimen shows a slight flare. The greatest diameter of the body is usually somewhere above its middle. The flat base varies from a third to half of the greatest diameter. All these larger jars are of the usual red ware with a design covering more or less the upper half. Figs. 3 and 4 of Plate LXXIV seem typical (the face of the latter has the nose molded, the other features merely painted). Plate LXXIX, Fig. 1, is like this last, except that the whole upper part of the vessel is slipped in maroon purple and on this are painted four double spirals, two in chalky white, two in yellowish or greenish white, similar to the one spiral in Plate LXXIV, Fig. 4, but smaller.

Small jars are represented by Plate LXXIV, Figs. 1, 2. These are about half as high as the large jars and of generally similar proportions, except that the vertical neck is relatively higher. Of the two pieces illustrated, the first is slipped, except around the base, with dark purple. Six crude eight-pointed flowers or stars are painted in white on as many bosses. Seen from the top, the vessel is more hexagonal than the drawing would indicate. The other jar of this pair has its upper half slipped with white. On this the design is painted in deep purple bordered with black—on the front only. The rear half is white. The neck is slipped purple, but with a pigment applied more densely, so that the effect tends toward black, whereas the purple in the pattern is more reddish, as the draftsman has shown it. The design looks like a fragment or derivative from the interlocking fish pattern of later Early Nazca. The paneling of the pattern is a trait that in general is characteristic of Peruvian styles which have come under Tiahuanaco influence.

Miniature Jars.—Plates LXXV and LXXVI show four jars of as many shapes, which have little in common, other than the fact that they range only from 8 to 12 cm. in height. Plate LXXVI, Fig. 5, is crudely overpainted in white and is the only Middle Cañete jar with a handle. Plate LXXV, Fig. 3, is evidently a miniature model of the large jars. The paste is yellowish rather than the usual red. The design is black and white. Figures 1 and 2 of Plate LXXV are from one grave, Hurtado's NNE-10. Both are rather crudely made and

painted. Figure 1 has a bird's head projecting from the shoulder, with black and white wings and legs sketchily painted in. Specimen 169669, from tomb A6a, not illustrated, is similar to Plate LXXV, Fig. 3, but only a little more than half as large.

Bridge-and-spout Jars.—Something over half a dozen jars with two spouts, or with a single spout connected to a figure by a bridge handle, were found by Hurtado and myself. Five of these that came to Chicago are shown in Plates LXX and LXXIII. Two are spherical or cylindrical, without modeling: Plate LXX, Fig. 2, and Plate LXXIII, Fig. 1. Both are painted with a geometric design in red, white, and black; or, to be more exact, Plate LXX, Fig. 2, has two shades of red, one more purplish.

Plate LXXIII, Fig. 4, has a woman's head and arms modeled on the upper edge of the cylindrical body. She carries on her head a child. From this a bridge handle extends to the spout, which is on the opposite side of the vessel. Evidently the body of the vessel was to be construed as the woman's body, or as the cloak covering it, because her arms emerge out of this, and at the bottom her feet are crudely indicated by painted modeling. The woman's face and arms are painted or tattooed, and the eye is the longitudinal one of late Early Nazca. The whole stylistic concept of the vessel is that of debased Nazca.

The two other vessels of this group are wholly modeled. In Plate LXXIII, Fig. 2, the bird has holes for two spouts, one on each shoulder. The paste is crude and crumbly and about half of the slip has been lost. The painting appears to have been in three colors—red, black, and white. The remnants of red are dark and somewhat purplish; the black is really medium gray.

Plate LXXIII, Fig. 3, shows three fruits, but the stem above their junction has been lost. The two fruits farthest from the stem contain orifices which undoubtedly terminated in spouts. The third fruit, directly under the stem, has no such orifice on top; its connection with the two other fruits is through the bodies and is invisible. This vessel appears to have been washed with red. The only black and white is in small areas below where the stems of the spouts have been broken off.

The bird vessel is typical of Nazca Y style where this comes associated with Epigonal. The triple-fruit jar is also characteristic of late Nazca, though less definitely so. It will be noted that on all the vessels of this class the spouts spread or flare at a considerable angle. In the pure Nazca style, in both its A and B phases, the spouts are cylindrical rather than tapering and parallel rather than spreading. The spread and taper become typical of the last Nazca period, when base Tiahuanaco influence is visible in vessels found in the same graves, or even on the same vessel that is still partly Nazcoid. Where the spouts continued into the post-Tiahuanaco cultures, as in late Chimu, they are also regularly tapering and spreading.

These spouted vessels are strong evidence that the Middle Cañete culture cannot be placed earlier than the terminal Nazca period, when this was becoming infiltrated with Tiahuanaco-Epigonal elements—that is, with highland influence. On the other hand, there is not a single intact vessel from a Cañete tomb which is done in strict or complete Tiahuanaco manner. It looks as if such highland strain as there may be in Middle Cañete pottery had reached Cañete Valley not so much by direct import from the mountains behind the valley as by coming up the coast in the form of Nazca Y-Epigonal hybrid influences.

VARIOUS FORMS

Flat Jars.—These are represented by a couple of vessels about 12 cm. in diameter, 10 cm. high, and about 8 cm. across the low flaring mouth. Plate LXXV, Fig. 7, shows the one with the most interesting design: viz., conventionalized fishes crudely executed. Plate LXXIX,

Fig. 2, also has a white shoulder. On this are painted nine inverted V's in black, each enclosing a smaller inverted V. The spacing, angles, and thickness of strokes are very irregular. As a matter of fact, there are nine full V's and a tenth has been squeezed into the insufficient remaining space, the smaller V which it should contain being left out. This piece is from the same grave, NE-18, as the miniature jar of Plate LXXV, Fig. 3. The two are alike in that the paste is yellowish buff instead of red. The white and black pigment on both is also of substantial quality, however crude the handling of the brush.

Miscellaneous.—A red, black, and white bowl with a flat bottom and flaring but concave sides is shown in Plate LXXV, Fig. 4. The design is painted on in the usual haphazard Middle Cañete manner, but is more pleasing than usual. The entire inside of the bowl, which measures 15 cm. in diameter, is painted with a metallic black or dark gray, through which the red paste shines with a purplish effect.

Holed Pottery Disks.—An unexplained type is flat disks or plates with a hole about 5 cm. in diameter in the center. Two of these remain in the collections in Chicago: Nos. 169667 (Plate LXXVI, Fig. 2) from tomb A-6a, and 170260a from tomb NE-18. They are respectively 15 and 16 cm. in diameter and almost flat, the depth of curvature being scarcely 1.5 cm. The ware is rather coarse and thick—from 5 to 8 mm.—and reddish. The first piece has a white slip on the concave side, with the very crude red and black design; the other is simply slipped in white throughout. Both pieces look as though they had been modeled with the hole in place; this is almost certain for the one figured. Their use and purpose is entirely conjectural.

Allied to these are large sherds with one or more holes bored through them. No. 170253 from tomb NE-5 is an irregular fragment of thick gray ware, about 12 x 10 cm. Near the middle is a perforation, and half of another remains at one edge. Tomb NE-20 yielded No. 170270. This is reddish ware from a large jar. The piece has been chopped out with seven or eight blows of an edged implement, and is irregularly polygonal, the largest diameters being about 12 and 14 cm. The central hole, 1.5 cm. in diameter, has been ground or bored out from both sides.

Tubes.—In tomb NE-20 there were 25 reddish pottery tubes, closed at one end, unpainted and unfinished on the surface, one of which is shown in Plate LXXVI, Fig. 3. One-half of these objects is now in Lima, the other half in Field Museum. They average about 20 cm. in length and a scant 3 cm. in maximum diameter. The uniformity, however, is rather rough, the longest and shortest pieces differing by fully 2 cm. The upper part of each contains a tubular hole between 1 and 1.5 cm. in diameter. This hole extends the full length of the tube, to where it is closed off at the bottom; but on the outside the objects constrict perceptibly about halfway down. The purpose of these tubes is unknown. They could have held liquids, meal, powder, or feathers, or they may have served as sockets for sticks or handles.

Pan's Pipe.—Plate LXXVI, Fig. 6, shows a fragmentary Pan's pipe of pottery, found on site F among Middle Cañete remains, but not in a tomb. The piece has been lost, and I dare not describe color and texture from memory, although I assume it was red and without painted design. The type is an Early Nazca one.

FIGURINES

A few pottery figurines and heads were found. They agree in having the narrow almond eye of Nazca B and Y molded heads. The best preserved, 169687, from A-13, is shown in Plate LXX, Fig. 3. The part of the figurine which remains is 11 cm. long. It is flat, only 2.5 cm. in greatest thickness. The head is curved backward in a way not shown in the

drawing. The head is also flat, except for the nose, the eyes being wholly painted on. The pattern appears to represent the design of a garment. The painting is in red, dark reddish brown, and white over a red paste.

Tomb A-5a contained a similar but larger figurine head, 169792, Plate LXX, Fig. 4. This is 5 cm. in breadth. Again there is no modeling, except the prominent nose and a shallow slit for the mouth. In contrast with the last piece, the eyes definitely slant. The face is yellow, the hair and pupils rusty black, the whites of the eyes white. A yellow face is typical of Nazca B and Y female heads (the preceding figurine, however, has the face red). The present head is also flat and curved backward. The fact that it has a finished upper edge rather precludes its having been a handle on a large jar, which otherwise it suggests. This piece is more Nazca-like than the last, not only in color, but in the treatment of the hair and in traces of cheek painting. Inasmuch as only the head was found in the tomb, there can be no absolute certainty that it was manufactured by people of Middle Cañete culture. It may have been found in the ground by them when they dug the tomb, or picked up as a remnant from an earlier occupation of the hill, and included among the grave contents.

The large jar shown in Plate LXXIV, Fig. 4, carries on its neck a Nazca B type head which is all painted, except for the modeled nose. Compare also Plate LXXIII, Fig. 4.

Plate LXXVI, Fig. 1, shows another fragmentary figurine. This is unpainted and was hollow. Unfortunately, the head is lost. This is not from a grave, but from a trial hole in an area of Middle Cañete remains.

SHERDS

Plate LXXVII, Figs. 1–3, shows a number of sherds found at spots *x* and *z* of site B; and Fig. 4, sherds from C. The letter B designates an area in and around the head of a gully which extends from the northwest edge of the hill nearly up to the central ruin R. The retaining walls facing this quebrada have been mentioned. There has been considerable fall and slide in the area, and it would require extensive and careful clearing to determine the time relations of walls, tombs, and deposits. Most of the sherds at B are typical Middle Cañete in design. The same also holds for the colors used; the characteristic greenish white and dark maroon appear often. So far as the fragments show vessel shapes, they are also characteristic Cañete. Thus the longitudinal fragments of Fig. 3 are all from low, steep-walled bowls. The same holds for Fig. 1, as regards the two bird designs. The three sherds with triangular heads in Fig. 1 suggest the conventionalized interlocking fish or serpent head, which historically first appears in Nazca B, so far as known; although they seem derivatives, not typical examples, of the pattern. The two uppermost sherds in Fig. 1 come nearer to Nazca ware in quality, especially the left-hand one with the fret which contains a definite gray, and is thin-walled and well polished.

In Fig. 2 the upper right fragment is from the vertical wall of a low flat bowl. The background is greenish white, the ware thin and smooth, the rim at the top well finished. The two other fragments are thick and coarse ware, much more crudely painted. On one the background is greenish white, on the other orange yellow. The design motives suggest decadent Nazca B or Nazca Y.

It would probably be impossible without a painstaking and expensive excavation to determine whether the pottery represented by these sherds dates from a pre-Middle Cañete occupation of site B by a population of terminal Early Nazca period, or is all of Middle Cañete origin with occasional absorptions or carry-overs of Nazca culture elements.

SIMILARITIES OF THE POTTERY STYLE

Nothing wholly positive emerges from the foregoing as to the place of Middle Cañete in the Peruvian relative time scale. It is quite clear that there is no evidence of classic or pure Tiahuanaco influence. Neither will there probably be much more dissent from the finding that even Epigonal Tiahuanaco strains are at most lightly and dubiously represented. As to Early Nazca culture influence, there are numerous enough indications of this, in ware unquestionably made by the Middle Cañete people themselves. Without exception, however, the ware showing Nazca resemblance is mediocre. Also, the resemblances are not to early Nazca phase A, but to later Nazca B, and to its decadent form Y, though largely without the Tiahuanaco or highland admixture which appears in phase Y in Nazca Valley.

As to post-Nazca and post-Tiahuanaco resemblances, there are suggestions, but little that one can put his finger on. The bowls with low vertical walls or recurved walls suggest Middle and Late Ica forms. Occasional designs like those illustrated in Plate LXXI, Fig. 2, and Plate LXXIV, Fig. 3, have a Late appearance, but of a generic character, not any one localized style. The same may be said of Plates LXXI, Fig. 4, and LXXIV, Fig. 4. Here and there are suggestions of the geometric red-white-black style of the Coast of post-Tiahuanaco and pre-Inca period. But this red-white-black geometric is expressed in a variety of local phases, and a specimen like Plate LXXIV, Fig. 2, does not tie up with any of these.

If we add that there is nothing specifically Inca or specifically Chimu apparent in the Middle Cañete finds, we have exhausted the last of the potential similarities and relations.

On the other side must be ranged the fact that the Middle Cañete potters devised several distinctive types such as the conical sieves, or distinctive sub-types such as the low and plate-like bowls. While the art was not carried to any high perfection, it was executed at its best with competence and the formulation of a degree of style.

The absorbed elements or similarities point southward to the region of Ica and Nazca. There is no indication of influence from the north, and surprisingly little from the highland. The indicated time position is quite clearly post-Early Nazca and pre-Late Coast culture. This would mean in a general way the time of Tiahuanaco-Epigonal influencing of the Coast; but on account of the non-discovery to date of remains of this type in Cañete Valley, it would be somewhat rash to assert that the Middle Cañete culture was either earlier or later than Tiahuanaco or precisely contemporary with it.

This placing of the pottery in the Middle Peruvian era, with some relation to or derivation from terminal Early Nazca, agrees with the findings from the textiles, whose remains are less abundant than the pottery but point to the same relations and chronological horizon.

MIDDLE PERIOD METAL WORK

Metal is definitely rare in Middle Cañete tombs. The contrast is marked with Late graves. The only specimen I found was 169697 in A-16, a small bell made of an oval sheet of copper 40 mm. wide folded over, the surface punched into "goose flesh" bosses 2–3 mm. apart; the clapper is a pebble: Plate LXXVII, Fig. 5. No trace of silver or gold appeared. The intactness to date of most Middle tombs argues against the occurrence of precious metal in the culture.

MIDDLE PERIOD TEXTILES

CLOTH

Most of the Middle Cañete fabrics found have been briefly included in the analyses on which Dr. L. M. O'Neale's and my summary in "Textile Periods in Ancient Peru"[1] was

[1] Univ. Calif. Publ. Amer. Arch. Ethn., vol. 28, pp. 23–56, 1930. Middle Cañete is called "Early Cañete" in this publication.

based. Plate 11 of that report shows three specimens from graves A-9 and A-16. Dr. O'Neale has been good enough to review all the twenty-three preserved specimens again, and intensively. Her analysis is given in full in Appendix VI, and illustrations of the more interesting techniques and designs are shown in Plates LXXXVIII to XC (see also Plate LXXIX, Fig. 7).

It would be supererogation to add to this thorough examination by an expert, except to mention briefly a few general findings distinctive of the culture or significant of its time position.

Fabrics wholly of cotton yarns number 15; of wool, 7; of cotton and wool, 0. Early coastal textiles from Nazca, Ica, Paracas, and Supe use wool alone oftener than cotton and wool: 33 per cent as against 26 per cent. In the Middle period (Nazca, Ica, Lima, Moche) and in Late times (Nazca, Ica, Chincha, Ancon, Chancay, Moche) wool alone is only half as frequent as the combination: 26 vs 50, and 19 vs 36 per cent.[1]

No Middle Cañete tapestries have been found. This again indicates antiquity. The percentage constituted by tapestry of total fabrics examined is: Early, 7; Middle periods, 44; Late, 29.[2]

Twill is exceedingly rare in Peru. Only two pieces have hitherto been recognized; one Late Nazca, one Middle (Proto-) Lima.[3] The Middle Cañete collection adds a third: A12-169678b.

Tie-dyeing is represented by NE18-170262a. This is perhaps the earliest specimen so decorated yet found in Peru. Its rivals are a Nazca Y-Epigonal and a "Proto-"Lima piece.[4]

Regularly interlocking warps and wefts, with scaffold or skeleton wefts, occur twice in the collection: NE18-170262b and 170322. This is a South Peruvian device, characteristic of Nazca and Ica, and typical of Early and Middle periods, although not unknown in Late.[5]

It will be seen that the Middle Cañete culture fabrics from Cerro del Oro point strongly toward Early or Middle and toward Nazca-Ica affiliations.

BASKETRY, SLINGS, CORDAGE, SPINDLES

Basketry was fairly abundant in the Middle Cañete culture. Specimens were found in Tombs A-2, A-8, A-12b, A-16, NE-1, NE-20. Twilled work and wicker work are most common. There is also a wicker-and-twined specimen and a coiled one, but unfortunately neither of these is quite identifiable as to period.

Plate LXXIX, Fig. 3, shows a flat twilled basket. It is 15 cm. in diameter; two other specimens from the same tomb (169698) measure 10 and 14 cm. The middle portion of this piece is almost flat for an area about 8 cm. square. At the corners of this square field the weaving elements are sharply twisted and pulled tight, resulting in four rigid spots from which the remainder of the basket turns upward. The courses of weaving beyond the corners also become increasingly circular to the edge of the basket. One of the accompanying baskets from the same tomb, which is less intact, shows an even sharper rise from the bottom to the rim.

Plate LXXIX, Fig. 4, is also twilled, but in softer material. It is bag-shaped. The height seems to have been 10 cm., possibly more, the diameter somewhat less.

Tomb NE-1 contained 170245, the remnant of one of the oblong twilled baskets which were so commonly used in ancient Peru to hold weaving and sewing materials, spindles, etc.

[1] *Ibid.*, Table 2, p. 28. [2] *Ibid.*, Table 3, p. 32. [3] *Ibid.*, Basic Table, at end.
[4] *Ibid.* [5] *Ibid.*, Table 5, p. 50, and Basic Table.

Wicker ware is represented by the fragment of a flat tray, something over 20 cm. in diameter, Plate LXXIX, Fig. 6. Unfortunately, this is from the one tomb (S-3) excavated by Hurtado, the age of which is ambiguous. (It contained two black jars which are typical Late Chincha, but also the typical Middle period bowl, Plate LXXI, Fig. 4. Hurtado regarded the tomb as Late. Possibly the bowl was found by the tomb diggers and included in its contents.) The specimen in question begins with six pairs of warps laid across each other. An extra warp is inserted in each pair during the outward progress of the basket, so that at the edge there are three rods in each of twenty-four warp units. One of each three is broken off, one turned to the left, and the third to the right, to form the edge. The single weft appears to be ordinary totora reed. The central 3 cm. of the basket consist simply of crossed warps without any weft. Then follow half a dozen courses of plain twining, after which the wicker weaving begins.

Other specimens of wicker work, without associated twining, from tombs A-8, A-12b, NE-20, establish this technique as undoubtedly characteristic of Middle Cañete culture.

Plate LXXIX, Fig. 5, is a piece of coiled basketry 13 cm. from center to edge. The foundation appears to be a bundle of grass stems. Most of the stems are split, so that the number in a coil is not readily ascertainable in their present desiccated condition. The wrapping seems definitely tougher and stiffer. The coils average almost exactly 2 per cm.; the number of stitches, from 5 to 6 per cm. There is no trace of design. The workmanship is even and competent. Most of the wear on the basket appears to have been on the inside. The specimen was found at Site Bx. Most of the remains in this area were Middle Cañete, but there were also a few Late objects and a series of sherds definitely more Nazca-like than most Middle Cañete pottery.

From the associations, I infer this coiled basket to be more probably Middle than Late in period, but the wicker-twined one the reverse.

Braided Slings.—Plate XC, Fig. 2, is a braided sling of soft, brownish, maguey fiber. The part that holds the stone has the braid divided into six flat cords. At one end of the whole is the usual finger loop, at the other a long tuft or tassel of fiber, roughly braided into a knot at the end. This piece is described by Dr. O'Neale in Appendix VI.

Two other slings, No. 169836, were found at Site Bx and seem Late in appearance. One of these has the center done in red and yellow Kelim tapestry.

Cord and Rope.—The outer lashings of mummies are frequently merely rude two-ply twists of totora. In somewhat better-made cord and rope, both two-ply and three-ply occur. For instance: F30-169849 includes a soft and rather loose-twist two-ply cord, averaging 5 mm. in thickness, and a harder twisted three-ply averaging about 4 mm.

Spindles and Spindle Whorls.—For some reason these objects suffered the heaviest post-excavation casualties of any class of specimens excavated by me. At the present writing only one intact Middle Cañete spindle whorl is available, NE1-170245b of Hurtado's collecting, Plate LXXXIII, Fig. 21. This is of pottery, cylindrical, 42 by 10 mm. It is incised with diamonds. These are roughened and then painted red and blue. The incisions separating them are filled with yellow, and the two ends of the cylinder have a row of white angles painted on a blackish ground. The painting was obviously done after the spool was fired.

Pottery spindle whorls, frequently painted in red, yellow, blue, and white on black or dark brown are typical of both Middle and Late Cañete. The period difference is in the shape. Middle period whorls are cylindrical, Late ones roughly globular (Plates LXXXIII, Figs. 16–20; LXXXVI, Fig. 12). The Late ones usually have the pottery surface burnished black, and only the incised lines are painted. The Middle cylinders are less intensely black in the ware, and the whole surface is more frequently painted over.

The habit of incising and painting pottery whorls is evidently a distinctive local Cañete habit which persisted from one period to the other. However, there is also a recognizable stylistic difference between the periods.

MIDDLE PERIOD: VARIOUS

I list for record and for possible comparative use in future studies a number of odd items found.

F30-169846 is a bone awl and a piece of slate brought to an edge.

NE18-170263 and NE20-170277 are bundles of split canes, respectively 19 and 20 cm. long. They may have served as counters or been kept prepared for some technological or practical use.

NE18-170260 consists of two wooden pegs or tops, conical below, cylindrical above. The larger is 7.5 cm. long, 5 cm. in diameter; the smaller, respectively 7 and 4.5 cm.

Gourds are abundant in Middle Cañete tombs. In fact, poorer tombs sometimes contain nothing but gourds. These vessels are fragile and they only occasionally survived excavation, subsequent handling, and transport. None were found with pyrographic or other ornament. NE18-170265 is sausage-shaped, 25 cm. in length and from 5 to 6 cm. in diameter. Several small gourd vessels from Tomb A-16 are shown in Plate LXXVII, Fig. 6.

No. 169837 is a well-preserved piece of soft yellowish leather, which in North America would be taken for buckskin. It is a roughly cut rectangular piece of skin, folded twice as if for wrapping, and with a cord for tying at one end. The longer edge appears to have been irregularly cut into as if for a sort of zigzag fringe. There are also three rows of small holes in the skin, as if a cord had been meant to be drawn through these. These holes have been simply stabbed through with a knife. The dimensions of the leather are something over 30x20 cm. The piece was found in the area Bx, next to a fragment of a comb. The skin is so thoroughly pliable as to suggest no great age. On the other hand, it seems unlikely that a modern Peruvian would drop a good piece of leather on an ancient ruin. The specimen is mentioned here on account of the rarity of preserved objects of skin from prehistoric Peru. As already stated, no determination of age could be made for anything found at the quebrada-head Bx without more thorough excavating than it seemed advisable to undertake.

Coca leaves filled three small pouches A16-169698e–g. The determination by the Museum's Department of Botany is *Erythroxylon coca* Lam. It is significant in view of the period and the coastal location.

LATE PERIOD AT CERRO DEL ORO

I recovered only enough Late material at Cerro del Oro to determine its relations to Middle period remains. The Middle culture being up to that time unknown, it seemed best to devote all possible effort and time to its exploration. The Late remains are in every way identical with those at Cerro Azul. There were undoubtedly some rich Late tombs on the Cerro del Oro, especially in the walled cemetery of site C; but these are precisely the burials which have been destroyed in the search for metal. Most of the untouched graves which remain are those of middle or lower class people. In those which I opened I found no gold, only traces of silver, and not much copper. It seems more profitable not to describe separately the Late material from Cerro del Oro, but to refer to the following account of the finds at Cerro Azul, in which Cerro del Oro Late items have been included.

III. CERRO AZUL: LATE CAÑETE CULTURE

As already indicated, the Late culture of Cañete is very similar to the Late culture of Chincha, the next valley to the south. The two are no more than local variants of the same type. If in these pages I speak of Chincha culture in Cañete, there is no implication that people originating in Chincha Valley moved north to occupy Cañete Valley. The cultural relation is not one of complete identity but of a strong and pervading similarity.

Cerro Azul is the harbor town for the whole of Cañete Valley. Like all Peruvian ports, it is an open harbor, formed by a projecting headland which gives shelter from the prevailing south and southwest winds. This headland consists of a rocky cerro, or rather two such, the smaller having its cliff-like face washed by the ocean, the larger being a short distance inland and extending parallel with the shore (Plan, Plate LXXXI). On a narrow strip of beach to the north of these masses of rock are the pier, warehouses, customs office, and terminals of the network of little freight railways which radiate out from here. In most weathers the shelter for ships is good, although open to the northwest. Beyond the cerro, the flat beach stretches northward with a gradual westerly curve. Back of this beach stands the pueblo or town as distinct from the puerto or harbor facilities proper.[1] The name of both harbor and town is derived from that of the hills, which, at least at certain seasons of the year, have a definitely bluish tinge as seen from a distance. The two rocky massifs are connected by a swell of ground and look like a unit. They rise up boldly and are visible for long distances both at sea and over the flat floor of the valley.

While the modern harbor is at the north foot of the cerro, the ancient ruins are on the south side. They stand thickest in the angle formed by the smaller seaward hill and the main one (Plate LXXX, Figs. 1, 3, 4). Here is an approximately rectangular area of sandy soil between the cerro and the surf, its north end shut off by the smaller hill, its south opening into the flat, uncultivated coastal plain. The terraces and pyramids cluster most thickly at the northern end of this rectangular area. They are particularly numerous and impressive around a central leveled plaza. They tend to tier up from this onto the lower slopes of the hill. The sketch map shown in Plate LXXXI gives the general relations of the principal structures to one another and to the topography. It is literally a sketch, made by eye and by walking over the ground, without actual measurements.

I have assigned each principal pyramid or terrace a letter to help in making the record of specimen locality more definite.

All of the structures are of adobe. All are flat pyramids or terraces. There is nothing which could be construed as a building with walls and rooms. The site must have been one of cult, rather than a town or capital.

Back of the pyramids that reach uphill, the steep slopes of the cerro are more or less worked into narrow, irregular, straggling terraces, whose effect from below is reminiscent of the horizontal cowpaths often encircling pasture hills in California (Plate LXXX, Fig. 5). These terraces are of insufficient width to contain buildings and probably represent the result of efforts to construct tombs on the hillside. There is nothing that could be called genuine soil on the cerro slope. Where the surface is not bare rock it is disintegrated rock, with more or less windblown sand mixed in. In this insecure footing, tending constantly to slide, the poorer people made the graves of their dead, digging somewhat into the surface of the hill and supplementing with crude constructions, partly of adobe and partly of loose rock.

[1] E. W. Middendorf, Peru, II, 1894, in his account of Cañete Valley, pp. 126–144, has a sketch plan of Cerro Azul which agrees none too well with mine.

All the pyramids and all the cerro slopes give evidence of having been dug into in the search for treasure. But there is no indication that anything notable was found, because there is no sector which has been deeply turned over. Evidently there was no habit of burying either wealthy people or chiefs at Cerro Azul. Why this was so is hard to understand, in view of the amount of building construction around the plaza, and the scattered poor graves here and there. In this respect there is a marked contrast between this group of ruins and the area C on the Cerro del Oro, where there is little in the way of structures except enclosing walls, but where the diggers' reward in silver and gold must have been rich, and the graves were clustered close.

No traces of any culture but Late were encountered at Cerro Azul.

POTTERY

Late pottery from Cerro Azul and Cerro del Oro is most often smoked black, not infrequently plain red. Red vessels with painted design were rare in my experience, nor do the scattered sherds suggest they were formerly numerous. The design is poorly executed technologically, and in several of the few vessels discovered the paint had mostly scaled off, or was lost after excavation. What there is of design suggests Late Chincha inferior ware without attempt at elaborate pattern.[1]

On the whole, the ware is definitely poor, even where the modeling has been done with competence. The paste is thick, not particularly well smoothed, and often gray instead of black. The chief exception is provided by occasional small flask-like vessels which are well smoked and well burnished. Incidentally, it is a local peculiarity that the small jars are almost invariably found inside the mummy wrappings. Even medium-sized jars are perhaps as often bundled in with the mummy as set beside it. This habit holds for the Late burials at Cerro del Oro as well as at Cerro Azul.

The pottery shapes also show no great variety. Jars predominate. These have almost always a high and often wide neck. Also there are almost always two handles, usually below the neck; although handles at the neck, vessels with single handle, and vessels without handle do occur. The most frequent form is amphora-like: a body longer than wide, and sloping toward a point or a quite narrow flattened base. From this shape there are transitions to an almost globular one. In the latter case the neck diameter is of medium width. When the vessel is elongated and conical-bottomed, the neck or mouth is sometimes nearly as wide as the body. Occasionally there is a piece that is somewhat flattened—oval in cross section—and very small toy-like jars may be asymmetrical.

Plates LXXXII and LXXXIII indicate the range of shapes as well as sizes. It seems unnecessary to go into more detailed description.

The chief differences from Late Chincha ware, as described by Strong and myself on the basis of Uhle's collection formed for the University of California in excavations near Tambo de Mora,[2] is that the Cañete ware is on the whole coarser in quality, contains a higher frequency of amphoras and a lower frequency of round-bellied jars and other shapes, less often carries a design, and in the majority of instances is smoked black. All of these, however, are differences of proportion only. Blackware occurs in a considerable proportion of cases in the Uhle collection.[3] In fact, I suspect that the high frequency of design-painted ware in his Chincha collection is due to his having dug mainly in the graves of the well-to-do. As one walks over the Tambo de Mora ruins in Chincha and notes the sherds and surface

[1] Kroeber and Strong, The Uhle Collections from Chincha, Univ. Calif. Publ. Amer. Arch. Ethn., vol. 21, No. 1, pp. 1–54, 1924.

[2] *Ibid.*

[3] Fifty-six out of 164 vessels or 34 per cent: Univ. Calif. Publ. Amer. Arch. Ethn., vol. 21, p. 252, 1925.

debris, or inspects the finds which huaqueros or local amateurs have assembled, one has the impression that blackware forms a larger proportion of average Late Chincha pottery than in the Uhle sample. This tends to equate the two valleys.

Pottery showing specific Inca features is scarce at both Cañete sites, definitely rarer than in the Uhle Chincha collection. I did not find or see a single aryballos, nor any other vessel of indubitable Inca form. The only pieces secured which are definitely reminiscent of Cuzco are purchased handles of Inca plates, Nos. 169574-6. One, a cat-head, is polished black; another, modeled into a deer hoof, is reddish buff. They are evidently fragments, and have had the broken edge ground off, no doubt by a modern owner. These specimens are without authentic provenience, but were secured from a small amateur collector in the harbor town, and, if not actually from the Cerro Azul ruins as alleged, they are no doubt from some other near-by point in Cañete Valley.

Plate LXXXIV, Fig. 1, shows portions of a large white-slipped jar with red and black design. This I excavated in Burial 3, in the west front of Pyramid B. Only a small part of the vessel was recovered. Either the parts found had been reburied, or the missing portions had been lost when the sand slid away. The walls are from 8 to 10 mm. thick, the paste fairly coarse, but the workmanship even. The illustration shows one handle and the red and black painted design, which depicts an animal resembling a dragon. Parts of several such figures appear among the sherds recovered; the drawing combines these into a complete figure.

Similar to this is the fragment of a large pottery vessel from Hacienda San Benito, shown in Fig. 2 of the same Plate. This is painted in black and red on a white slip and shows the same monster head. There is also a hollow human face molded on the shoulder. The slip and pigments used, as well as the paste, are closely similar in the two specimens. The present one is slightly heavier, the ware running from 11 to 12 mm. in thickness.

No. 169581 is fragments from a very large and coarsely made vessel, or more likely from two. Coarse grit was used for tempering, which has baked to the surface on the outside. The inside was apparently given a coating of somewhat finer clay before firing. Four of the pieces run to a consistent thickness of 25 mm. The rim sherds have a lip turned out at an angle of some 30 degrees. The largest fragment increases from 24 to 35 mm. in thickness just before the neck rim, which is turned nearly at right angles to the vessel wall. Both these vessels must have been nearly a meter in diameter; large enough, in short, that they could have been used as a bath tub or salt pan or something of that sort. Why they should have been buried in the sandy fill of one of the lower pyramids near the beach is hard to imagine.

A pottery figurine is shown in Plate LXXXV, Fig. 5. This is 150 mm. in length. The paste is pale reddish, slipped with white, which has been well smoothed. The head is painted red. The figurine is female, and similar to those found in Late remains in Chincha Valley.[1] For another specimen, see below, under "Various."

Also of pottery, in most cases, are spindle whorls. Five of these, from both Cerro Azul and Cerro del Oro, are shown in Plate LXXXIII, Figs. 16–20. The shape is more or less spherical, in contrast with the cylindrical whorls of Middle period. Some are plain smoked black, some smoked black with incisions overpainted after firing, and some are reddish. The diameter is usually not far from 15 mm. These also have close Chincha affiliations.[2] Compare also the Late spindle whorls in the cache described below and shown in Plate LXXXVI, Fig. 12.

[1] *Op. cit.*, Plate 14. [2] *Ibid.*, Plates 16–18.

CLOTH

The Late textile fabrics found at both Cerro Azul and Cerro del Oro were mostly fragmentary or in poor condition. They are so patently similar to Late textiles from all along the central Peruvian coast, which are by now well known and abundantly illustrated, as to need no special discussion, particularly as no notably fine pieces were encountered. One specimen may be excepted.

Plate LXXXV, Fig. 1, shows a piece of painted veiling doubled and end-twisted to serve as a headband. This type of gauze or veil cloth is common enough in Peru—the interest in the present instance is in the painting. This is in two (or more?) shades of brown, and the patterns were applied after the gauze had been doubled and stitched into its present shape, the paint running through from the upper to the lower fabric.

METAL

Metal is definitely more abundant in Late than in Middle Cañete times. Most mummies had copper or occasionally silver sheets or ornaments bestowed about the head, most frequently perhaps in the mouth, but also about the ears or elsewhere on the face. Where the metal is entirely corroded it shows in green stains on the bone or teeth, as previously mentioned. This burial habit prevails for the Late period of all parts of the Peruvian coast which I have visited, from north of Trujillo to south of Nazca, frequently even as regards the graves of the poor. The most frequent disposal is of a round or oval sheet of thin metal about the size of a coin, apparently laid on the tongue—a sort of Charon's obol.

Copper must have been fairly abundant in order that it could be used as regularly as this; for instance, even in the group burials of relatively poor people at Cerro Azul, who were as a rule put away with at most one or two pottery vessels of rather meager quality and dressed in wrappings of no distinction.

VARIOUS OBJECTS

The following are various objects of more or less interest from Cerro Azul, but which, unless specifically mentioned, were not found in tombs:

A small llama in pottery, No. 169483, from Quebrada 7.

A sherd with characteristic Late Ica beveled lip, No. 169484, from near Pyramid I. The painted pattern is mostly gone, but the remnants of it suggest Late Chincha-Ica style.[1]

Five unpainted sherds of varying size and thickness, each bored with from one to three holes, are shown in Plate LXXXIV, Fig. 3. They are from Pyramid H. Three of the sherds have strings of two-ply cotton through the holes. In fact, two of the three are still tied together. The sherds look as if they had been roughly hacked out. The holes are up to 7 mm. in diameter. All have been bored, or, perhaps more exactly, gouged, from the outer or convex side of the sherd, with a conical point. The qualification as to gouging is made because several of the holes are not truly circular. One or two of them show a little drilling from the inner side, but not much.

No. 169488 comprises a parcel of sherds with design in Late Chincha or Ica style, but crudely executed. They are also from Pyramid H.

No. 169493, from near Quebrada 6, shown in Plate LXXXV, Fig. 3, is a double-headed stone figure only 34 mm. high and rudely carved. It may represent two persons in one blanket. A similar, smaller specimen occurred in the cache described separately below.

No. 169494, from near quebradas 6 and 7, is a pottery figurine of Chincha type similar to the Late one from Cerro del Oro illustrated in Plate LXXXV, Fig. 5, but smaller. The length from the genitals to the top of the head is 85 mm. No. 169515 is a seated pottery figurine from Quebrada 2.

[1] Kroeber and Strong, Chincha, as cited, 1924, Figs. 12, 16.

No. 169495, a lump of reddish purple paint, was found with a shell. This and the next are also from the area of quebradas 6–7.

A small sherd of smoked blackware, No. 169497, has the appearance of having been lead-glazed on the outer side. The metallic luster is definitely marked, but may have been produced by contact with something in the ground.

A small stone carving of a maize ear, or rather of two ears, is No. 169501, from Quebrada 7.

No. 169502, from Quebrada 1, is a small pottery whistle on a string.

No. 169503 is wool which my highland Indian workmen declared to be vicuña.

No. 169509, from Quebrada 1, is a small chisel of bronze, corroded.

The lower half of a fox's leg (*Dusicyon sechurae*) was found in association with some Ica-like fragments of pottery and fragments of striped cloth, a crude sling, and two shells (No. 169514, from Quebrada 2). The fox's leg has fragments of soft cotton string adhering to it. The fur is short and yellowish. The sling is peculiar in that its center piece is a narrow strip of hide with soft brown fur. This fur is mostly gone, but was evidently quite short. The skin averages 4–5 mm. in thickness and the strip is only about 10 mm. wide.

Nos. 169542–43–44 were found in Burial 3, in the west front of Pyramid B, with the fragmentary large jar No. 169541 shown in Plate LXXXIV, Fig. 1. One of the three pieces is a rock crystal. The second is a fragment of a wooden tablet, carved with a repeating pattern of conventionalized birds (Plate LXXXV, Fig. 4). The rectangles enclosing the bird figures have been painted red. The tablet has been cut across the grain of the hard wood used. Perhaps for this reason it broke in antiquity. The piece retrieved is bored with four small holes, through which cotton twine has been passed and lashed from one hole to another—no doubt also across the break to the missing part of the tablet. The string appears to be three-ply. One original edge of the tablet has been preserved: this is incised in alternating brown and red diamonds.

The third specimen of this lot is a balance, No. 169544, Plate LXXXV, Fig. 2. The dimensions of the beam, of hard dark wood, probably huarango, are 168 x 25 x 13 mm. The beam is unornamented and slightly curved. The curvature appears to have followed the grain of the wood, rather than to be due to subsequent warping. Instead of scale-pans, a net was attached to each end of the beam, according to a well-known Peruvian variant. The nets are hung by two strings, not three; they are of a fine hard fiber, apparently neither cotton nor wool, probably maguey; the heavier cord from which the scale beam balances appears to be cotton. All the suspensions are by an informal knot tied just large enough to prevent the cord from slipping through the perforation. Compare Chincha, as cited, Figs. 20, 21.

Two dog skulls, Nos. 169604–05, were found in the cemetery in tombs 4, 5, 7, but apparently not associated with any grave. The burial of such skulls appears to have been a local habit, irrespective of period, since Middle culture graves A-1, A-4, A-12, A-15–16 at Cerro del Oro also contained dog skulls (see Appendix II).

No. 169606 is the remnants of a pouch of guinea-pig skin filled with cinnabar. This is from the north platform of Pyramid D, on which we made our camp. In fact, the object lay in the sand only a few inches under my sleeping bag, which, in the course of a week or two, worked away enough of the sand for the red paint to show one morning.

This is typical of the way artifacts are distributed at Cerro Azul. What is discovered in tombs is usually of meager quality and in poor condition. Specimens of better workmanship turn up with apparent randomness in the sandy fills in or around the terrace-pyramids. Most such objects are too good to have been outright refuse. Perhaps they were deposited as votive offerings, some of which, as the terraces were later extended, may have been moved, broken, or scattered with the sandy soil in which they had been put away.

My Cerro Azul grave excavations happened to yield no "chalk" (diatomaceous earth), but several Late tombs on the Cerro del Oro did: Nos. 169749 (C-22); 169763 (near C-22); 169863 (near C-31); 170292 (Hurtado, S-3, "Chincha" type). Another piece occurs in the cache described below. These lumps of material are also known from Late graves at Chincha.[1] My workmen suggested that the chalk was rubbed on the fingers before spinning.

[1] Kroeber and Strong, 1924, p. 29.

A CACHE

My most remarkable find at Cerro Azul is a cache or deposit which had been buried in the slope of Quebrada 1, the most seaward gully, which runs up from the foot of Pyramid B northward into the northwest cerro. Here, two of my workmen, while I was elsewhere in the ruins, encountered what seemed to them a small mummy wrapped in white cotton cloth. It lay near the surface—perhaps only a foot or so down; there were no signs of tomb wall; and the bundle hung together well. They therefore dug it out and then called me. Plate LXXX, Fig. 2, shows the object as uncovered. The photograph reveals its superficial position in the slope, as well as the half-disintegrated rock of which the "soil" was composed. The cubical shape of the find seemed strange for a mummy, and as soon as the outer wrapping was removed, the parcel proved to contain a set of objects and materials mainly connected with textile fabrication, very snugly and compactly packed together, and for some reason deposited among the shallow burials on the slope of Quebrada 1: perhaps accompanying a corpse or in lieu of a missing corpse, but possibly as an offering or for safe-keeping. The ingenious stowing of the contents in bundles, and the neat tying together of these into the larger parcel, suggest that the owner of the outfit carefully arranged his own effects as he would want to find them again, whether in another world or after a journey or temporary absence in this one. The effect is quite different from all tomb gifts or equipment found by me in Cañete, whether of Middle or Late period.

Equally remarkable is the good preservation, which contrasts with the decay and corrosion, even of pottery slip, characterizing nearly all graves opened, especially at Cerro Azul. The whole site is exposed to constant fog for half the year, and Quebrada 1 lies particularly open to the prevailing south to southwest wind. The splendid condition of this deposit, in view of its shallow covering of rocky soil, must therefore be due mainly to the care with which it was packed and wrapped and rewrapped, possibly also in part to the absence of body-juices, which in burials presumably often increase rot and decay.

At any rate, however it came to be, we have here somebody's outfit of tools, materials, amulets, and prized possessions arranged exactly as he or she carefully arranged them four hundred or more years ago, and but slightly deteriorated by age. The personal touch of the owner is evident. The value of the find is not so much in the individual objects, as in the fact and nature of their assemblage into a unit.

The contents group as follows:

No. 169559, white cotton cloth enclosing the whole. In this were two primary parcels, which I call A and B.

A was again wrapped in a cotton cloth, 169547. Inside this was an oblong twilled basket, 169545; and, lying on or beside this, three loose objects, 169546a–c. The basket itself is 169545a; the contents, 169545, as listed below.

B was wrapped in a rough cloth, 169558. Inside this was a coarse but soft cloth, 169557. In this were four parcels, which we will call B1, B2, B3, B4, each wrapped again in a cotton cloth, respectively 169550, 169552, 169554, 169556.

The four sub-parcels in B contained the following:

B1, 169548, a net sack and its contents as listed below; also 169549, two heavy pieces of shell and a wool cord.

B2, 169551, a bundle of skeins of yarn, wool(?), and cotton.

B3, 169553, a cluster of balls of thread of different colors.

B4, 169555, a large ball of white thread.

The detailed contents of A, B1, B2, B3, B4, will now be given with reference to the pieces illustrated in Plates LXXXVI and LXXXVII.

BASKET AND CONTENTS: PARCEL A, 169545

Twilled basket, with folding top: 36 x 22 x 10 cm.

Cane flute, 195 mm. long, 19–22 in diam. Bore 16 mm. at mouth end, 11 at butt. Mouth end cut off somewhat diagonally, with a rounded notch in line with the stops, c. 7 mm. deep, 9 wide. Seven stops, c. 7 mm. diam.; separated by 17, 15, 14, 15, 14, 16 mm.; 21 to notch, 23 to butt. Three thread lashings; groove for fourth near butt. Plate LXXXVI, Fig. 14.

Three small gourd vessels: shallow, circular, 60 mm. diam.; half pear shape, 82 x 68 mm., c. 38 mm. deep; tube-like, 82 mm. long, diam. of opening 10–11 mm., maximum diam., near bottom end, 26 mm.

Comb, 100 x 62 mm. Cover, splints twilled with brown cotton thread; ends, a black, hard gum or pitch. Spines, aver. projection, 20 mm.; 26 remain, 13–14 lost. Plate LXXXVI, Fig. 4.

Wooden ear-plug, probably of algorrobo. Diam. 38 mm., inner diam. 26, 11 mm. thick, edge c. 3 mm., concave. Plate LXXXVI, Fig. 3.

Stone carving, crude face on one side, load of maize(?) on back, 47 x 30 x 14 mm. max. diam. Stone bluish gray, hard, parts of original surface of pebble remaining. Plate LXXXVI, Fig. 7.

Whitish stone carving, two heads out of one blanket, like Plate LXXXV, Fig. 3. Height 21 mm. Plate LXXXVI, Fig. 6.

Small carved stone, pear or pendant shape, 13 mm. high; base rubbed flat. Balance weight(?). Plate LXXXVI, Fig. 5.

Pyrrhotite, magnetic iron sulphide; several rubbed surfaces; dimensions about 35 x 27 x 28 mm. Weight, 81 grams.

Ball, about 15 mm. diam., of lead; surface, thin film of grayish white; inside cuts with a knife, leaden luster. Weight, 19 grams. This piece has not been analyzed, but its specific gravity is 11.17, very near that of pure lead. Scrapings from the surface when analyzed gave lead and no other metal in quantity, according to Chief Curator of Geology H. W. Nichols.

So far as I know, pure lead has hitherto not been discovered in prehistoric Peruvian remains. The spherical shape of the casting, and the size, suggest a musket ball of about 0.60 inch caliber. If so, the whole cache would be of Conquest or Early Colonial period. But then, why the bronze knife, the silver needle, and over a hundred objects of native material and manufacture without a trace of anything European? It seems more probable that besides silver, copper, and tin the Peruvians occasionally also smelted and cast lead. Either way, the little ball is significant historically.

Quartz crystal, 43 mm. long, diam. 12 mm. at one end, 7 at other.

Small flake of translucent flint or chert, one edge good, traces of red paint; 23 x 16 mm.

Lump of "chalk," that is, diatomaceous earth, 63 x 58 x 25 mm.; most surfaces show rubbing away. Weight, 20 grams.

Slab, c. 48 x 27 x 8 mm., of fine-grained blackish stone, probably flint, surface similar to touchstone; both surfaces and all edges much rubbed down. Weight, 21 grams.

Blackish hard-grained pebble.

Gray pebble, conical or triangular, base rubbed flat and smooth; 21 mm.

Fossilized hinged shell(?).

Half of heavy *Conus* shell, edges much rubbed down, all surfaces worn; 75 x 65 mm. Plate LXXXVI, Fig. 2.

Bone receptacle of posterior part of a skunk (*Conepatus inca*) skull; one end plugged. Plate LXXXVI, Fig. 1.

Two concretions or molluscan tubes.

Six empty spindles wrapped in a cotton cloth. Two unpainted, 262, 265 mm. long; four painted (Plate LXXXVI, Fig. 12), 284–291 mm., diam. 3–4 mm. Painting: white, yellow, red, black. Whorls: oval, conical, biconical, pear-shaped. Colors: blackish gray; purplish red; yellow with red band on which are yellow dots and white circles; red with white dots; black with red base band, both with white dots; same, two red bands.

Loose whorl, conical, red with black central band.

Gauze veiling cloth, one end white, one brown, the latter much decayed. Contained five wound spindles, silver needle, bone awl, as follows:

Five spindles wound with cotton thread; 260–290 mm. long; diam. of wound bobbin, 20–45 mm. The whorls can be felt with certainty inside the three thinner ones.

Silver needle, patinated like bronze; 95 mm. long, diam. c. 1 mm.; point fairly sharp but sudden, like a piece of pinched-off wire, without taper. The eye is a slit on one side, a very small hole on the other; remnants of fine thread. Just below the eye, a slack-twist cotton cord or thick thread has been wound around the needle, as if to protect a remnant of thread. Plate LXXXVI, Fig. 9 (upper).

Fine bone awl, 155 mm. long, slender, surface polished with use. The upper two-thirds woven into a red-brown-white case or handle, terminating in a 40 mm. tassel of sixteen red wool threads. Plate LXXXVI, Fig. 11.

Gauzy cloth, one-half white, other brown, the latter with a red braided edge, containing five spindles and two other sticks, as follows:

Five spindles wound or half-wound with cotton thread, three white, two brown; in two the spindles are still visible, in the three others they can be felt. Length, 250–265 mm. There is also an empty spindle 217 mm. long. Plate LXXXVI, Fig. 8.

Weaving batten, 287 x 15 mm.; hard, dark wood.

Spindle or bobbin 332 mm. long, 6 in diam., taper mostly toward one end, the other with a cap or button of close-twist thread. A little brown cotton thread is desultorily wound around the upper third.

Similar (but not out of the same cloth wrapping) is a red-painted spindle 265 mm. long, diam. 4.5 mm., taper all one way, other end capped with a black seed(?) 12 mm. in diam., which is loose but does not detach. Plate LXXXVI, Fig. 13.

A cloth, similar to the last except with small checker pattern instead of white portion, enclosed a bundle. This bundle appears to contain a few small crooked, woody twigs roughly wrapped in totora(?) reed tied with cotton string.

Bladder(?) or guinea-pig skin, tied with string, and wrapped in a torn piece of cotton cloth; about 12 x 9 cm.

Length of agave-fiber braid rope, tapering off at one end.

Three small balls of cotton thread, tan, dark brown, white.

A wad of hair, c. 90 x 70 mm., in a few lashings of reed. Dark brown, seemingly human.

A black hardwood needle, 84 mm., end flattened, contains circular eye. Below this, a wad of owl(?) or down feathers is wrapped on. Plate LXXXVI, Fig. 9 (lower).

Fifteen spines, 90–110 mm. long, most of them still bearing at the butt rovings or tufts of unspun cotton. Plate LXXXVI, Fig. 10.

OUTSIDE THE BASKET BUT WRAPPED IN PARCEL A: 169546

Wad of human hair, c. 18 x 14 x 6 cm., folded in a knotted square piece of coarse brownish gauze. Weight of hair, 110 grams.

Three wooden pegs or stakes, 32–34 cm. long, 1.5–2 cm. diam., one end sharpened, the other roughly rounded. The knife strokes are plain. There is also a fragment, 20 cm. long, of a fourth sharpened stick, 12–13 mm. diam.

Peg- or top-shaped object of huarango wood, cylindrical, then notched, then sharpened to a point. Length over-all 140 mm., diam. 38–42. Notch 8–11 mm. deep, 20–30 wide. Cylindrical and conical portions each c. 60 mm. long. Plate LXXXVII, Fig. 6.

Weaving batten, 294 x 13 mm., of cane or light wood.

Unpointed spindle, 266 mm. long, wound to thickness of c. 26 mm. with dirty white cotton crêpe thread.

Small ball of cotton or fiber thread, and another of fiber.

PARCEL B1, 169548–9

Net sack with drawstring, c. 23 x 15 cm., 4.5 mm. knotted mesh. Probably maguey. Plate LXXXVII, Fig. 2. This held the next seven items, which together constitute No. 169548.

Cylindrical net object, c. 15 cm. wide, 47 cm. in circumference; 3.5 mm. mesh; maguey thread, heavier than in last. Complementary pattern in red and bluish green, the figures separated by one strand of natural tan thread. Use wholly problematical, but the cylinder would have fitted a human head. Plate LXXXVII, Figs. 3, 3*a*.

Fragments of a similar net, finer thread and mesh, remnants of pattern, apparently also cylindrical. This appears to have been old and torn when deposited.

Three hanks or winds of neat maguey string, and a fourth untied and beginning to snarl.

Two skeins or rovings of soft maguey fiber.

Square of cloth, brown and tan small check, c. 26 x 34 cm. Sewn down the middle, but one long edge torn off; one short end cut off, apparently with four separate knife cuts.

Forty-three half-spools of hard, dark wood, probably huarango, tied together. Plate LXXXVII, Fig. 1. Two breaks. The three lengths contain eighteen spools, 68.5 cm. long; ten, 36.0; fifteen, 50.5; total forty-three, length 1.55 meters, or, on allowance for two ruptures, 1.58. Somewhat more than half of this length would be the wooden spools or beads, the remainder, string. Each spool is a ⅔ cylinder, hour-glass notched toward the middle. Each is separately strung to the next as shown in Plate LXXXVII, Fig. 1; a self-knot alone keeps the string from slipping out of its hole. The largest spool is only about 5 mm. longer than the shortest, but almost twice as broad (27 vs 14 mm.) and thick, and must weigh four times as much. Necklace or other personal adornment?

Bronze lunate or *tumi* knife, with wrapped handle and wrist cord. Plate LXXXVII, Fig. 4. From end to end of blade, 114 mm.

In the same parcel B1, but outside the net sack, were 169549, a 9-strand (3 threes) braid of white wool 72 cm. long, 3–4 mm. wide; and two pieces of Spondylus shell. These have been hacked or broken off, but one edge has been rubbed smooth. They measure about 10 x 8 cm. each and weigh 211 and 165 grams.

PARCEL B2, 169551

Six skeins of thread, each crushed together, but each ready for winding. Three are tan, one whitish, one red, one dark blue or "black"; the last appears to be wool and is really two skeins. The thread is crêpe-twisted, especially the cotton. Weights of the six skeins in order, 205, 196, 101, 56, 109, 102 (+57) grams. The skeins are suspended on loops of totora reed. Their lengths are 70, 52, 46, 36, 51, 42 (and 48) cm.

Three balls of blackish thread.

PARCEL B3, 169553

Fifteen balls of cotton thread, from 35 to 90 mm. diam. Two are white (including the largest); three tan (one darker), two brown; two red (one more rusty); six of as many hues ranging from dark blue to greenish.

Small wad of human hair, in a twisted cloth.

Square-braid cord, 40 x 0.5 x 0.5 cm.

Bone awl, blunt, 86 mm. long, on 40 cm. 3-ply cord. The cord passes through a hole in the end into the hollow part of the bone, where it is knotted; the other end has a loop through which the awl can be slipped for suspension. Plate LXXXVII, Fig. 5.

PARCEL B4, 169555

Ball of fine white cotton thread, c. 9.5 cm. diam. The thread is wound on in flat masses, not singly.

IV. SUMMARY

Two cultures are apparent in pre-Hispanic Cañete Valley, a Late and a Middle.

The Late Cañete culture is nearly identical with the Late culture of Chincha, and closely related to that of Ica and Rio Grande (Nazca) valleys. It is the only culture represented at Cerro Azul and the upper one of two at Cerro del Oro. It agrees with the Chincha culture in shapes of pottery vessels, figurines, Kelim and other tapestry, abundance of copper, presence of bronze, silver, and presumably gold, the habit of erecting clusters of pyramids, non-deformation of skulls; and even in minor features, such as the occurrence of balances and diatomaceous earth in graves. Minor variations from Chincha are a somewhat greater proportion of blackware, and inferior execution of painted ware; more frequent painting-over of incisions in blackware spindle whorls; and absence or near-absence of specific Inca (Cuzco) types. However, this last difference is only relative, because Kroeber and Strong distinguished a Late Chincha phase I unassociated with Inca types, and a Late Chincha phase II associated with them, among Uhle's grave finds in Chincha.

The Middle Cañete culture is known only from Cerro del Oro, where it underlies the Late—physically in spots, and inferentially everywhere in time. Its chief characteristics are:

1. Frontal deformation of skulls.
2. Cubical, hand-made adobe bricks.
3. Walls and terraces rather than pyramids or buildings.
4. Metal rare, and so far as known only copper.
5, 6. Rarity of tapestry weaves and of use of cotton and wool in the same garment.
7. Occurrence of interlocking warps and wefts, with scaffold or skeleton wefts.
8. Cylindrical spindle whorls of pottery, incised and over-painted.
9. Double-spout jars, the spouts tapering and spreading.
10. Painted and modeled women's faces, with long almond eyes.
11. Similar figurines of pottery.
12. Pottery Pan's pipes, triangular.
13. Conical sieves of pottery.
14. "Cumbrous" bowls of somewhat aberrant design, and less heavy than elsewhere.
15. Footed and unfooted flat bowls with vertical walls or incurved lip.
16. No pottery shapes or designs of definite Tiahuanaco or other highland type.
17. Gourd vessels abundant, but without pyrography or ornament.
18. Basketry fairly frequent; twilled, wicker probably coiled, possibly twined also.
19. Coca.

Of these traits, 8, 13, 14, 15, and perhaps 18 are local peculiarities.

Traits 1, 3, 4, 7, 10, 12 are Early Nazca; 9 is typical of terminal Early Nazca, Y; 2 of "Proto-Lima," that is, Middle Lima (Tiahuanacoid-Highland and terminal Early Nazca influence); 5, 6, of the Early period southern coast.

Trait 15 looks like an anticipation of Middle-Late Ica forms, but it is only an approximation.

Notable is 16, the absence of Tiahuanaco influences.

It may therefore be concluded that the culture here called Middle is middle in time, viz., post-Early Nazca, and pre-Late Ica, Chincha, Lima, Chancay. It roots partly in terminal Early Nazca culture; but, in distinction from this, is remarkably free from the Tia-

huanacoid influences which in most coast valleys are the specific criterion of prehistoric Peruvian Middle time.

There is a possibility that an Early Cañete culture underlies the Middle Cañete one in parts of the Cerro del Oro. The slender evidence however consists only of some unassociated Early Nazca type sherds. Extensive and careful excavations would have to be performed before it could be decided whether such an earlier culture once flourished on the spot, or whether its fragments represented terminal Nazca (Y) imports into the Middle Cañete culture.

APPENDIX I

MIDDLE CAÑETE TOMB DESCRIPTIONS

KROEBER EXCAVATIONS

SITE A[1]

Tomb 1.—Trench-like, E to W, between terraces; floor 120 cm. below surface. Four bodies in row on up-hill (S) side, facing N; pottery along their feet along N wall. Clothing rotted to powdery scraps. Numerous fragile calabashes, deep, not bowl-shaped. Plate LXXVIII, Fig. 1.

Tomb 2.—Adjoining 1 on E; 70 cm. square, 100 floor to surface. N side formed by a large rock. Cylindrical stone 80 cm. long laid across N side of top. Clothing partly preserved, frozen stiff with salt. Mummy lacked cranium; mandible present.

Tomb 3.—Adjoining 2 on S, i.e. out of line. Craniumless mummy under vault-roofed niche of tomb; walls 100 cm. high. No pottery or objects. Plate LXXVIII, Fig. 2.

Tomb 3a.—Not well defined; adjoining 3 on S. Child's body, head in cloth wrapping knotted to a peak. No objects except a dog mandible.

Tomb 4.—100 or more meters N of 1-3a group, slightly higher. Adobe-walled trench-chamber. Three children's bodies, humped, heads literally between knees. All heads bandaged two ways. Heads of first and second bodies only 30 and 50 cm. below surface; third slightly deeper in cave-like chamber to W of others. No pottery or objects, except dog skull with second body.

Tomb 5.—Five meters SW of 4. Four bodies; adult, broken, contracted position, but nearly flat; child, in chamber or recess; two adults, in square chamber of adobe, contracted position, but head not between knees, and either fallen over or laid side by side. Specimen 169792 with first body, 169639–40 with second, 169643–46 with third and fourth.

Tomb 6.—Two hundred meters S of 1-3a, at lower level of hill surface.

Tomb 6a.—"Under" 6, 150 cm. below surface. Roofed with adobes of double dimensions. Child's body.

Tomb 6b.—Adjoining to NW, 250 cm. deep; 220 cm. to top of body. Similar cave-chamber, similarly roofed. Two skulls of adults, one headless skeleton, apparently of adult, but small-boned.

Tomb 6c.—Depth 210 cm. Whole body.

Tomb 7.—Adjoining 5 on S; 90 cm. deep. Body, with bowl laid on head; also fragments of baby's skull.

Tomb 8.—Adjoining 7 on S; about same depth. Two seated bodies, one on a fragmentary wicker basket; both headless, but one with lower jaw.

Tomb 9.—Near 5, 7, 8, to S.

Tomb 10.—Two meters E of "4" (sic; for 9?). Body without cranium, but with mandible.

Tomb 11.—In line with 9. Two bodies; no artifacts.

Tomb 12.—Fifty meters NW of 6 in direction of 4, 5, 7, 11. In adobe-walled chamber 190 cm. below surface, 50 x 60 cm., 60 cm. high, a child's body. Chamber roofed with three sticks; across these, canes; on canes, soft earth; child's body roped as usual, clothing rotted; seated on a blackish cloth. One calabash, no pottery. In another adobe chamber 80 cm. from last, and roofed with inclined stones, were two roped bodies, one lacking most of its limbs, the other its head and arms; with them was at least one calabash but no pottery.

Tomb 13.—A few meters W of 9–11; chamber as usual; in rocky soil.

Tomb 14.—Adjoining 13 on N. Similar.

Tomb 15.—SE and downhill c. 40 meters from 4, 9, 13 group.

Tomb 16.—Near 15. Outside 110 cm. square, inside 80 cm.; of adobes, except front of stones and adobes; 80 cm. high interior; 110 cm. soil above to surface. Wooden beam across top; from this to front

[1] These A tombs lay in 5 groups: 1-3a; 4, 5, 7, 8, 9, 11, 13, 14, c. 100 meters N; 15, 16, 40 meters SE from 4-5; 6-6c, 200 meters S of 1-3a; 12, 50 meters NW of 6-6c toward 4-5.

wall, roof of stones. Six bodies were seated in this one chamber, as shown in Plate LXXVIII, Fig. 3, none of them with head between knees. Objects 169692–713.

SITE F

Tomb 20.—Ten meters uphill from a sacked Late cemetery.

Tomb 21.—Adjoining 20 on W; 100 cm. deep. Half-arched, sloping roof of adobes.

Tomb 25.—Near 20–21. Contained only body and gourd vessels.

Tomb 26.—Twenty meters N of 20–21, on same level of hillside; 110 cm. deep; against a wall. Late burials downhill from this.

Tomb 27.—Uphill (E) from 26, behind another wall; 110 cm. deep.

Tomb 28.—E of 27, 130 cm. deep. Vertically above this grave was a Late or Chincha-type deposit or slide of tumbled grave material, from 70 or 80 to 100 cm. thick, including three black 2-handled jars, a globular spindle whorl, and five undeformed skulls (169796–804). Plate LXXVIII, Fig. 4. Four pottery vessels were with the body of Tomb 28. Behind it (uphill) was a wall.

Tomb 30.—Six meters N of 26, on same level; 150 cm. deep; on E (uphill) side of a wall. Dimensions 75 x 75 x 75 cm.; 6 courses of adobes; floor "torta," caked mud; roof flat, of unsupported adobes. This roof had kept even dust from seeping into the tomb. A footed bowl was laid inverted on the mummy's head. Besides specimens 169843–49, the tomb contained a series of calabashes of shapes resembling pottery vessels.

APPENDIX II

MIDDLE CAÑETE TOMB CONTENTS

KROEBER AND HURTADO EXCAVATIONS

TOMB A-1

169609–12.....Four bodies
169613.....Brownish pot; lip, no handle
169614.....White jar; groove-tail fish design
169615.....Wide plate, half red, half gray; pieces only
169616.....Similar fragments
169617.....Wide plate, arc and cross design; broken but complete
169618.....Wide plate, striped; fragments, incomplete
169619.....Wide plate, arcs; fragments, incomplete
169620.....Comb fragments
169621.....Seven spindles (three with cylindrical whorls, incised and painted)
169622.....Dog's head, incomplete
169623.....Dog's head

TOMB A-2

169625.....Body and mandible, without skull
169626.....Fragment of coarse basketry and comb

TOMB A-3

169633.....Body and mandible, without skull

TOMB A-3a

169634.....Child's body, head in cloth wrapping
169635.....Dog's mandible

TOMB A-4

169636.....Child's body
169637.....Dog's skull

TOMB A-5

169638, 41, 42.....Three of four bodies in tomb
169639.....Flat bowl, painted
169640.....Small jar
169643.....Four spindles with round and oval whorls, paint-incised
169644.....About thirteen bone and two spine needles
169645.....Painted plate; broken, not complete
169646.....Two pieces of painted cup-bowl, Early Nazca shape
169792.....Pottery head, Nazca type

TOMB A-6

169673.....Conical sieve jar, broken, but complete

TOMB A-6a

169666.....Double-spout jar, geometric pattern on white, Nazca style
169667.....Disk plate, center hole, painted
169668.....Jar, one handle, painted white
169669.....Jarlet

TOMB A-6b

169670–72.....Two skulls with jaws, body of small adult (with one of skulls?)

TOMB A-6c

169674.....Body
169675.....Double-spout jar (spout lost); one globe on other
169676.....Plate, red and black striped

TOMB A-7

169647.....Body
169648.....Low flat bowl, broken but complete
169649.....Jar, painted, side opening
169650.....Two spindles (one with globular incised whorl)
169651.....Pottery fragment; imitation of olecranon of humerus(?)
169652.....Four black ears of corn

TOMB A-8

169653.....Two headless bodies, one mandible
169654.....Bird jar, Nazca Y style
169655.....Fragment of flat wicker basket

TOMB A-9

169657.....Body
169658.....Large jar, black and white arcs on red
169659.....Plate; solid black arcs on red; whole
169660.....Brown and yellow cloth, fragment

TOMB A-10

169661.....Body and mandible, without skull
169662.....Black and red conical sieve, complete
169663.....One ear black corn

TOMB A-11

169664–65.....Two bodies

TOMB A-12

169678.....Blackish cloth, brown and yellow edge
169679.....Half dog mandible
169691.....Six sherds

TOMB A-12a

169677.....Child's body

TOMB A-12b-c

169680–81.....Skull and body
169682.....Flat wicker basket
169683.....Ear of black corn

TOMB A-13

169684.....Body
169685.....Jar; three papaya fruits; double-spout broken off
169686.....Three spindles (two with incised globular whorls)
169687.....Pottery figurine, breasts, black and white, incomplete

TOMB A-14

169688.....Body
169689.....Calabash filled with cotton and plugged with adobe disk
169690.....Four spindles (three with cylindrical incised whorls)

TOMB A-15

169714.....Body
169715.....Bunch of braids (for feathers?)

TOMB A-16

169692.....Twilled basket, string, wooden peg
169693.....Miniature reed mat or cradle, three calabash fragments strung on it like doll
169694.....Four canes
169695.....Outside cloth wrapping of body, brownish, one hole
169696, 99, 707, 09, 11, 13..Six bodies
169697.....*a*, square cloth with four strings; *b*, copper bell; *c*, half dozen beads including one minute turquois; with body 6
169698.....Two small twilled baskets containing four small sewn pouches; cane, stopped at both ends; seven small calabashes; with body 6
169700.....Fiber sling from head
169701.....Head-band of twisted skin(?)
169702.....Three pouches (two patterned)
169703.....*a*, square cloth with 4 strings; *b*, small sewn pouch; *c*, cross with red "lace"; *d*, bit of red wool; *e*, cane; *f*, cut shell; *g*, red corn ear; with body 1
169704.....Cloth, head wrapping of body 1
169705.....Cloth, outer wrapping of body 1
169706.....Square cloth with strings at four corners; with body 2
169708.....*a*, head-band and veil, red and black; *b*, square cloth with corner strings; *c*, sample of outer cloth wrapping; *d*, two cut shell beads; with body 3
169710.....*a*, small twilled basket; *b*, *c*, *d*, three square cloths with corner strings; with body 4
169712.....Six ears of maize; with body 6

TOMB D-19

169718.....Body
169719.....Plate, red; in pieces, nearly complete

TOMB F-20

169729.....Body
169730.....Bowl with foot, inside black (part of edge lost)
169731.....Pieces of plate found lying on mummy's head
169732.....Plain jar
169733.....Seven spindles (one with cylindrical whorl)
169734.....Four bone needles
169735.....Pouch

TOMB F-21

169738.....Body
169739.....Six-cornered jar
169740.....Larger jar, painted black
169741.....Bowl with foot; design, diamonds
169742.....Plate; step triangle, white edge on purple-black

TOMB F-25

169782.....Body

TOMB F-26

169783.....Body
169784.....Wide plate, red-white-black stripes and arcs; from head of mummy; in three pieces
169785.....Four spindles (two whorls globular, one grooved, one near-cylindrical)

TOMB F-27

169786.....Body

TOMB F-28

169787.....Body
169788.....Bowl with foot, inside purple; broken

169789.....Jar, painted with bird figure, no handles
169790.....Jar, smaller, purple top, no handles
169791.....Large bowl, no neck

TOMB F-30

169843.....Small red bowl with foot; from mummy's head
169844.....Large jar, painted, yellow Nazca head on mouth
169845.....Knob-headed wooden implement
169846.....Bone awl and piece of slate in a calabash
169847.....Yellow feather ornament on broken stick; in wrappings above head
169848.....Preserved portions of cloth forming a sort of false head or peaked crown
169849.....Fragments of rope from mummy lashings
169850.....Body

TOMB NE-1

170241.....Large red jar, three RWB fishes
170242.....Pair of low bowls, red, inside purplish
170243.....Jar, bridge-and-spout, modeled woman, baby on head, RWB
170244.....Low jar, RWB
170245.....*a*, fragment of oblong basket; *b*, spindle with cylindrical whorl, red, yellow, white, blue

TOMB NE-4

170246.....Body
170247.....Cloth wrappings, very rotten; brown, originally white(?)
170248.....Open flaring bowl, RWB circles for ornament

TOMB NE-5

170249.....Body
170250.....Double-spout jar, RWB zigzag band
170251.....Round jar, one side white, other with pattern of square spiral in RWB and purple
170252.....Low bowl, white segments and dots on purple
170253.....Large sherd, perforated in middle
170254.....Sticks, spindles, cloth

TOMB NE-16

170255.....Child's mummy lashed on mat, flat. Head crumbled

TOMB NE-18

170256.....Large red jar, RWB, one large double spiral
170257.....Low jar or bowl, zigzag band
170258.....Tiny jar, black and white
170259.....Tiny jar, apparently unfired
170260a.....Two holed plates, flat, plain, unfired (one left in Lima)
170260b.....Pair of wooden pegs or tops(?)
170261.....Fragments of plain white cloth
170262.....Fragments of red-yellow-blue cloth
170263.....Bundle of split cane
170264.....Corn ears
170265.....Three calabashes, sausage-shaped (two left in Lima)

TOMB NE-20

170266.....Large jar, red-white-purple, four double spirals
170267.....Rough reed rope on a cane, plug for 170266
170268.....Conical sieve, fine, red and black
170269.....c. twenty-five clay tubes (thirteen left in Lima)

170270.....Large sherd with hole
170271..... Mass of string or net, pebble, and peg like 170260
170272.....Cane with remnants of white cloth "flag"; planted behind body
170273.....Stick of lucma wood, broken; also planted behind body
170274.....Five sticks and canes
170275.....Four shorter canes
170276.....Two bundles of short canes
170277.....Three bundles of split canes
170278.....Fragment of circular wicker basket
170279.....Calabash, yellow paint inside

TOMB NNE-10

170280.....Body of child
170281.....Low bowl, RWB, diagonal pattern
170282..... ....Flaring bowl, small, RWB
170283.....Jar, small belly, high neck, BW, crude
170284.....Small jar, bird's head projection, RWB, crude
170285.....Broken jar, wide neck, RWB, crude
170286.....Jar neck

TOMB S-6

(Below S-3, which probably Late)

170298.....Good bowl on foot, outside red, inside purple

APPENDIX III

DIMENSIONS OF MIDDLE CAÑETE TOMBS, WALLS, AND BRICKS

Measured by A. Hurtado in Centimeters

A—MIDDLE CAÑETE TOMB SIZES

Tomb number		Floor area interior	Height	Floor to present ground surface	Position
SSE	1	80 x 80	..	...	.....
S	1	68 x 46	..	120	.....
	2	30 x 30	45	...	30 cm. from 1
	3*-5	.....	..	...	1000 cm. from 1
	6*	60 x 60	..	200	Under 3-5
	..	250 x 210	..	...	1000 cm. from 6
NNE	1	30 x 30	..	100	.....
	2	65 x 65	65	...	200 cm. from 1
	3	.....	..	...	500 cm. from 1
	5	Same as 2	..	...	.....
	6	Same as 5	..	...	.....
	7	42 x 42	42	150	1000 cm. from 1
	8	Same as 1	..	...	50 cm. from 7
	9	60 x 60	60	120	400 cm. from 8
	10*	Same as 1	..	...	100 cm. from 9
	11	.....	..	...	200 cm. from 10
	12	.....	..	125	.....
	13	20 x 20	..	...	.....
NE	1*	45 x 40	60	...	.....
	2-3	60 x 60	60	...	500 cm. from 1
	..	215 x 180	..	300	Adjoining 1
	4*	60 x 60	60	150	.....
	5*	Same as 4	..	150	Adjoining 4
	6	.....	..	150	.....
	7	.....	..	210	100 cm. from 6
	8	.....	..	180	.....
	9	120 x 57	90	180	130 cm. from 8
	10	.....	..	240	100 cm. from 9
	11	.....	..	120	In soil
NE-(A)	12	150 x 75	85	343	Gables 50 cm. (more?)
	13	.....	..	120	In soil, above 12
	14	65 x 65	65	120	.....
	15	40 x 40	40	220	.....
	16*	45 x 40	60	260	.....
	17	60 x 48	50	220	Adjoining 15
NE-(B)	18*	150 x 102	109	345	300 cm. from 12. Gables 54 cm. (more?)
	19	45 x 45	45	...	At entrance of 18
	20*	140 x 85	140	420	200 cm. from 12. Gables
	21	.....	...	120	In soil, above 18

* Collections to Chicago; others in Lima.

B—MIDDLE CAÑETE WALLS

Cemetery	Height	Thickness	Position
S	90	60	Parallel, 145 cm. apart
S	125	76	
S	60	81	.....
SSE	..	200	(1200 cm. long)
NNE	100	50	.....
NE	230	46	Parallel to next, 150 cm. distant
NE	250	90	Parallel, in contact
NE	253	28	
NE	288	60	
NE	50	50	Parallel to last, 315 (353) cm. distant
NE-A	80	40	.....
NE-A	90	40	Parallel, 110 cm. distant
NE-A	180	45	Parallel, 210 cm. distant
NE-A	220	45	Parallel, 330 cm. distant

C—MIDDLE CAÑETE ADOBE BRICKS

10 x 10 x 7.5
11.5 x 10 x 9
12 x 10 x 7.5
12.5 x 12.5 x 9
14 x 10 x 9
14 x 14 x 10
18 x 16 x 12
45 x 32 x 12 (Roof slabs, Tomb NE-12)
52 x 24 x 13 (Roof slabs, Tomb NE-18)

APPENDIX IV

LATE CAÑETE TOMBS

1. CERRO DEL ORO

SITE C

Tomb 22.—E of walled cemetery 150 meters; 110 cm. deep, in much disturbed and refilled soil. 169743-49: four 2-handled jars (red; red, pointed bottom; black, round-bellied, single handle on neck, good ware; black, small amphora); two cloths; two pieces of "chalk."

Adjacent Tomb, disturbed.—Four black jars, 169751-54, two of them inside mummy wrappings.

Tomb 23.—Adjacent to 22; 120 cm. deep; apparently undisturbed. 169765-69: minute black jar in mummy wrappings; woven pouch; mussel shell with paint; twelve spindles with large globular whorls incised and painted; painted spindles; spines for needles.

Tomb 24.—Near 22-23. Mummy seated; a guinea-pig skull with it. 169770-80: three pottery vessels, two black, one buff; large cloth in six colors, much torn; cloth and fringe fragments; thirteen spindles, some painted, five with globular incised and painted whorls; seven fragments of similar whorls; two small weaving swords, one of them rectangular; two canes filled with spines and two glued pieces of cane; two pieces of "chalk" (for rubbing on hands before twirling spindle?); cane flute, crushed; thirty small balls of red paint, five smooth pebbles, four shells, two fragments galena(?).

Tomb 31.—Close to 22-24. Cylindrical well, slightly tapering, adobe lined, 250 cm. deep. Halfway down, a cane roof; above this, the soil much turned over; below, undisturbed. Three bodies at bottom of well; one skull stained green at ears, one over nose and forehead. 169852-62: eight black 2-handled pottery vessels, the two smallest inside a mummy: an ear-plug of black pottery; wooden ear-plug, possibly from outside the tomb; blue paint; mussel shell with red paint.

SITE F

Slid tomb material above Middle period Tomb 28: five skeletons, four with natural heads, one somewhat flattened (169800-04); three black jars, 2-handled (169796-98); globular spindle whorl (169799).

Tomb 29.—Nine meters S of (Middle) Tomb 28, slightly higher on same terrace. A recumbent body, on its back, feet drawn up and turned in; lying on a few canes, wrapped in coarse cloth, 1 meter deep. Skull natural. In the wrappings, a small black jar, 169840. Appearance of this body suggested a Colonial period burial.

Tomb on second terrace above Middle period Tomb 28, 50 meters E and 50 S of it; 100 cm. plus deep. Teeth stained green. Black jars; basket with four large globular spindle whorls painted in incisions.

SITE S (HURTADO)

Tomb 3.—This appears to have been an older tomb re-used in Late times. It was directly above Middle period Tomb S6. Of the contents, one specimen, 170289, was a Middle period low bowl with foot, in three pieces. Everything else (170288, 170290-97) was Late: black jars, calabashes, spindle whorls, "chalk," corn cobs, clothing of the mummy, a silver headband. The skull was undeformed.

2. CERRO AZUL

Tomb 1.—In Quebrada 2. Four adults, fourteen children and infants, nested together; more or less cemented together by salt incrustations; all flexed, but all laid down; highest only 40 cm. below surface. 169516-37: nine 2-handled jars, all black except 169523 red and 169516 with design; all but this last found singly within mummies. Copper (and silver?) in three mummy mouths; four pink shell beads still on string; red paint; seal limb bones; fragments of cloth and wool. A meager burial for eighteen individuals.

Tomb 2.—In upper Quebrada 1. Two adults; no objects. 169535 lay on back, head uphill, thighs spread but feet crossed, Buddha position; wrapped in much coarse folded cloth. 169539 lay with neck

by right knee of 169538, pelvis by its head, knees bent to right, feet beyond head of 169538; head of 169539 detached, near its own feet and head of 169538.

Tomb 3.—W front of Pyramid B, facing beach, crouching body, 169540, apparently buried naked in a sand-filled hole dug in a refuse-filled terrace now covered by slid and blown sand. Under the body was a rag with red and green stains. No wrappings on or objects with body. To N of burial a room covered with beach gravel, below which lay refuse-fill and ash. To S, in the fill or in the sand above it, were 169541-44: eighteen fragments of large heavy whitish vessel with monster design; fragmentary wooden tablet covered with bird design; a rock crystal; balance of black wood with parts of net sacks remaining (Plates LXXXIV, Fig. 1; LXXXV, Figs. 2, 4).

Tomb 4.—At mouth of Quebradas 8 and 8a, in level soil S of Pyramid H. A large oval tomb, partly lined, deepest part to 200 cm. below surface, containing six adult and six children's bodies, heaped and no longer separable; all twelve had copper in or about the mouth. 169584-600. Chief objects: ten jars, round and pointed bottomed, all black and 2-handled; except 169590 unhandled, red, with Late Chincha style design, much spoiled.

Tomb 5.—Circular, small, adjoining end of 4; 100 cm. deep. One child, laid in reeds; one black face-jar, 169583.

Tomb 6.—Circular, somewhat larger, next to 5 and "at entrance" of 4; 70 cm. deep. Two adults; no objects.

Tomb 7.—In same cemetery, nearer hill. One body; copper from skull; no other objects. 169601-02.

APPENDIX V

MEASUREMENTS OF SKULLS

Dr. W. D. Hambly, Field Museum, has kindly measured for me forty of the skulls brought back, thirty-eight from Cerro del Oro and two from Cerro Azul; as per the attached tabulation. These measurements were made to enable the Middle period deformation to be described more accurately.

CERRO DEL ORO SKULLS

Late graves	Specimen number	L	B	H	B/L	H/L	H/B	
Cerro Azul 4	169598	160	136	132	85	83	97	
Cerro Azul 7	169601	164	134	129	82	79	96	
Near C 22	169750	178	135	133	76	75	99	
Near C 22	169758	161	142	129	88	80	91	
Near C 22	169759	170	124	127	73	75	102	
Near C 22	169760	164	146	131	89	80	90	
Near C 22	169761	170	139	128	82	75	92	
Near C 22	169762	158	133	127	84	80	95	
Above F 28	169800	162	126	124	78	77	98	J: p M2 i s
Above F 28	169801	170	140	131	82	77	94	
Above F 28	169802	166	138	132	83	80	96	
Above F 28	169803	153	132	114	86	75	86	J: BS op; p M2 i s
Above F 28	169804	155	142	118	92	76	83	
Middle graves								
A 1	169609	175	164	119	94	68	73	
A 1	169610	166	170	115	102	69	68	
A 1	169611	168	168	116	100	69	68	
A 1	169612	156	165	117	106	75	71	
A 3 (4)	169634	147	158	109	107	74	69	J: p M2 i s
A 5	169638	158	171	119	108	75	70	
A 6b	169671	163	148	115	91	71	78	M3 er
A 6c	169674	169	164	117	97	69	71	
A 7	169647	150	169	120	113	80	71	
A 9	169657	155	160	120	103	77	75	
A 11	169664	166	165	127	99	77	78	
A 11	169665	172	158	127	92	74	80	
A 12	169680	158	147	126	93	79	86	
A 13	169684	164	156	124	95	76	79	
A 15	169714	167	150	126	90	75	84	
A 16	169699	161	147	134	91	83	91	
A 16	169707	160	144	131	90	82	91	
A 16	169709	173	154	126	89	73	82	
A 16	169711	164	154	127	94	77	82	
A 16	169713	158	152	136	96	86	89	
F 20	169729	158	152	116	96	73	76	
F 21	169738	146	148	112	101	77	76	BS cl; M3 i s
F 26	169783	146	148	113	101	77	76	
F 30	169850	162	168	118	104	73	70	
Uncertain age								
C-D 19	169718	161	164	117	102	73	71	
C	169724	149	155	120	104	81	77	M3 not er
B 18	169827	152	135	127	89	84	94	BS op; M3 er
B 17	169828	175	161	118	92	67	73	

Explanations: J, Juvenile; BS op, cl, Basal Suture open, close; p M2, M3, permanent 2nd molars, 3rd molars; i s, in dental sacs; er, erupting.

Omitting four skulls from graves whose cultural age was not clear from the artifact contents, and three others as juvenile, we have eleven Late and twenty-three Middle period adult skulls. Some of the Late skulls are somewhat flattened occipitally; enough so that their average length of 165 mm. is probably a few mm. below what it would have been naturally. Thus their average length-breadth index of 83 perhaps represents one not far from 80 for the natural type. However, they will have to serve as an approximate standard from which to describe the deformation deviation of the Middle period. The average length is 165 mm., breadth 137, height 129.[1] These are obviously close to normal proportions.

In contrast, the Middle period skulls average 161.5 mm. long, 157.5 broad, 122 high. This means that they are only 3.5 mm. shorter, but 7 lower and 20 broader than the Late skulls. In nine cases out of twenty-three the breadth is actually greater than the length. These nine skulls average 156.3 mm. long, or 5 mm. less than the whole series. However, it is clear that on the whole the deformation has resulted less in shortening the skulls than in lowering them (basion-bregma measurement). The volume has been made up by a sharp increase of breadth in the rear region of the parietals. Evidently the frontal pressure was not so much fore and aft, as downward, over the whole of the frontal bone and perhaps beyond the bregma; the corresponding expansion occurred well toward the rear of the skull, but laterally, owing no doubt to a pad at the back of the head. The heads are therefore primarily flattened, with receding forehead. In local terminology they are, correctly enough, *chata* (flat).

[1] With a larger series, the wholly undeformed skulls could be selected by eye and measured to ascertain the natural type of the area.

APPENDIX VI

MIDDLE CAÑETE TEXTILES

BY

LILA M. O'NEALE

The twenty-three specimens comprising the Middle period textile collection from Cerro del Oro, Cañete, are more or less determinable as follows: garment fragments (169678a, b; 169848; 170262a–d; 170322); a veil or scarf (169704); kerchiefs (169710a–d); band (169660); bag (169702); pouches stuffed with coca leaves (169698e–g); rectangular webs for pouches(?) (169698c, d); maguey sling (169700); miniature shirt (169697a); objects of unknown use (170262e).

YARNS

All yarns, of whatever ultimate size and strength, are spun as single plies or strands. Subsequently these may be combined into 2-ply, 3-ply, or even larger yarns. The ancient Peruvian weavers usually wove with 2-ply yarns twisted slackly, medium tightly, or tightly. It is rare to find a 2-ply yarn spun to the crêpe stage. On the other hand, almost all single-ply weaving yarns were given an extra amount of twisting in order to render them strong enough to stand the strain of tension in the loom. It seems, also, to have been customary to give crêpe twist to weft yarns, although they required little strength.

The all-cotton fabrics (including the maguey sling) are to the all-wool fabrics in the Cerro del Oro collection as 16: 7. There are no specimens into which both cotton and wool yarns enter.

The number of warps and wefts per inch in a fabric is called the count. Count varies with the size of the weaving yarn and the density of the material. Usually, ancient Peruvian fabrics are warp face: the number of warp yarns within the inch unit is appreciably larger than the number of wefts within the unit. This tendency for the warps to be more closely set in the loom than the wefts, which are battened into place by a sword device, is illustrated by the warp counts arranged in sequence, beginning with the lowest in each group:

COTTON FABRICS				WOOL FABRICS			
Warps per inch		Wefts per inch	Excess of warps	Warps per inch		Wefts per inch	Excess of warps
16	x	10	6				
18	x	16[1]	2				
22	x	16[2]	6				
				24	x	16	8
				24	x	16	8
26	x	16	10				
				26	x	22	4
28	x	14	14				
28	x	28	..				
32	x	12	20				
				32	x	18	14
32	x	12	20				
32	x	14[2]	18				
32	x	20	12				
32	x	30[2]	2				
34	x	16	18				
36	x	16	20				
38	x	12[1]	26				
				56	x	16	40

[1] An average taken of several counts made at different places in the fabric. [2] Single-ply cotton yarns.

TECHNICAL FEATURES

The Cerro del Oro collection of textiles, although small, contains several fabrics with technical features characteristic of those from other relatively early sites.

WARP-WEFT TECHNIQUES

It is to be expected that a large proportion of the cloths of any period or site are examples of plain weave or its variations. Of the twenty-three Cañete pieces, eighteen are in this category with these differences: fifteen are of the type in which single warps are crossed by a single weft element; one is half-basket type, that is, pairs of warps are crossed by a single weft element (169678a); and two specimens are of the warp-and-weft interlocking type (170262b and 170322). This technique is explained in the analysis of the latter specimen.

The twills are notable from the standpoint of their rarity in any period and site. Possibly the two large fragments (169678a, b) were originally parts of the same web. Hand weavers have a disconcerting manner of changing techniques within the same warp set-up; fragments do not always tell the whole story of the original fabric. The twilling in the Cañete piece is done as by any modern weaver, although the herringbone arrangement is conceivably a step beyond that in which the wale runs in one direction only.

There are no tapestry specimens in the Cañete lot, although two pieces have features characteristic of that plain weave variation: the miniature shirt, specimen 169697a, with its neck opening made in the manner of a Kelim slit, and the maguey sling, specimen 169700, which has a short length of figure-8 weaving like that done for narrow bars of contrasting color in Kelim tapestries.

SINGLE-ELEMENT TECHNIQUES

Two specimens illustrate the form of fabrication by means of a single set of active elements. One is 169660, a band made by manipulating parallel strands, possibly hanging from a support, or possibly fastened at their ends within a frame. The process might be called multiple parallel twining. If such strands, worked in pairs, are always turned to the right, or to the left, the effect is similar to twilling. In the Cañete specimen, the twining of adjacent pairs toward each other, counterpairing them, gives an effect similar to knitting. The texture is close.

The second single-element specimen, sling 169700, is 3-strand plaiting throughout.

EDGE FINISHES

The nature of the fragments and complete specimens, as may be seen from the list, precludes opportunities for much decoration. The maguey sling, 169700, has a tassel; one of the warp-and-weft interlocking specimens, 170322, has a fringe added to the end of the woven web just as if more weaving were to be done; and the bag, 169702, has a 1-loop needle-knitted binding which serves both as seaming and decoration for the bottom. No one of these three details is unusual, or more characteristic of one period than of another.

The only stitchery of a seaming type is that shown on the three specimens 169698e–g, small pouches stuffed with coca leaves, and that up the sides of the miniature shirt, 169697a. The whipping stitch, as it is called, is a very elementary over-and-over stitch, which retains its name whether done coarsely as on these specimens, or with great care as in joining breadths of material for some of the large mantles from Early to Inca periods.

VARIOUS DEVICES

Special mention should be made of specimen 169702, a bag, which apparently was warped after a manner to produce a ring. The analysis gives the probable method in detail.

Tie-dyeing is also unusual, especially in the Early period. Color, design elements, and the general effect of cotton fragments 170262a are all typical of the technique.

Drawing in, or warping, for color changes is familiar among Early Nazca specimens, both cotton and wool. The Cañete lot contains a single example, the wool bag previously mentioned, 169702. Its range of colors suggests that the available dyes were probably more varied than the rest of the small collection indicates.

SPECIMEN ANALYSES

The generalizations made in the above paragraphs are based upon the detailed analysis of each specimen given in this section.

(1) Specimen A9-169660:[1] band fragment 6″ x 3″ (full width). Plate LXXXVIII, Fig. 2.

Construction: multiple parallel twining, similar to some lace techniques. The set-up for the twining requires 72 yarns per inch. These are manipulated in fours, each of the inner two elements of the four being turned away from the center and over the outer two elements. A detail of the counterpairing is shown in Plate LXXXVIII, Fig. 2*a*. The construction of this band is identical with that used for the narrow bands or ribbons of the Early period at Nazca (Majoro, Nazca 170476c, e). The arrangement of the colors and the number of yarns necessary to develop the pattern in the Cañete specimen follows the order given:

BROWN	ORANGE	TAN	ORANGE	TAN	ORANGE; repeat
8	6	8	6	8	6

Yarns: 2-ply wool yarn, dyed, slack-to-medium twist.

Design and color: zigzag lines and diamond shapes in three colors.

(2) Specimen A12-169678a: garment fragment 8½″ x 19″ (full width).

Construction: plain weave variation of the half-basket type in which pairs of warps are crossed by a single weft. The weave for the end border (2½″ wide) changes to herringbone twill, 2 warps up, 2 warps down, and repeat (Plate XC, Fig. 3).

Yarns: 24 warps by 16 wefts per inch.
2-ply wool, natural brown (llama?), and dyed, medium twist.

Design and color: main web dark Brown; stripes of 4 Yellow yarns, 4 Red, 4 Yellow, 10 Red on the side edges. Two very heavy loomstrings of light wool edge the end of the web.

(3) Specimen A12-169678b: garment fragment 22″ x 19″ (full width).

Construction: twill, herringbone type; 2 warps up, 2 warps down, as shown in the flat-view diagram, Plate XC, Fig. 3, for 169678a.

Yarns: 24 warps by 16 wefts per inch.
2-ply wool, natural brown (llama?), and dyed, medium twist.

Design and color: main web dark Brown; stripes as in 169678a; loomstrings lacking.

(4) Specimen A16-169697a: miniature shirt with neck and armscye openings, 5½″ x 5″. Complete web as woven, 11″ x 5″.

Construction: plain weave; 3 heavy loomstrings at each end of the web. At the bottom of the neck opening, on one side only, there are two wefts of yarn of loomstring size. The reason for putting across these two wefts and turning back the ends is not clear (Plate LXXIX, Fig. 7).

Kelim neck opening on the lengthwise center, 2½″ long. This opening is made by turning the regular weft on adjacent warps as in regular Kelim tapestry.

Whipping stitches up sides, taken very deep and far apart, with ends knotted at armscye openings.

Yarns: 32 warps by 20 wefts per inch.
2-ply cotton, Brown, slack-to-medium twist.

Stitchery thread: 4 2-ply cotton yarns twisted together.

Color: natural brown of the cotton.

[1] A9-, and similar prefixes, indicate the site and tomb.

(5, 6) Specimens A16-169698c, d: complete webs for pouches(?), 7½″ x 4″ and 8″ x 5″.

Construction: plain weave. Heavy loomstrings across both ends of each web.

Yarns: c, 32 warps by 12, 14, 16 wefts per inch.
Single-ply cotton, White, hard twist.
d, 16-18-20 warps by 16 wefts per inch.
2-ply cotton, Brown, hard twist.

Color: White and Brown of the weaving yarns.

(7–9) Specimens A16-169698e–g: pouches stuffed solid with coca leaves, 5½″ x 3½″; 4½″ x 2½″; and 4″ x 2½″ (Plate LXXXIX, Fig. 1).

Construction: plain weave. Heavy loomstrings at two ends of each web.

Whipping stitches close the sides and more or less draw together the top edges of the pouches. Specimen 169698g is better constructed than the other two specimens.

Yarns: e, 36-38-40 warps by 12 wefts per inch.
2-ply cotton, White, hard twist.
f, 32 warps by 12 wefts per inch.
2-ply cotton, White, hard twist.
g, 36 warps by 16 wefts per inch.
2-ply cotton, White, hard twist.

Color: all White.

(10) Specimen A16-169700: sling, throwing type, 74″ (complete length).

Construction: plaiting, 3-strand. The center portion, a long oval, consists of two fairly large outside plaits. Within these are four smaller 3-strand plaits each of which is begun by looping the necessary maguey fiber lengths through the inner side of the main plaits (Plate XC, Fig. 2). These two smaller plaits are joined to the outer ones only; the other two plaits forming the center are begun in the same manner as described, are braided independently for about an inch, combine into a single plait, separate to make two plaits for almost three inches, combine as one, and finally separate to disappear into the main plaits. The effect is similar to network. More maguey strands are added to augment the size of the combined outer plaits for the cord ends.

Tassel: at the finial of one end a tassel is made by looping untwisted maguey strands through the last twists of the plait, then tying the braid ends about them. The lower ends of the tassel strands have been drawn together, divided into two sections, and woven over, figure-8 fashion. A finger loop finishes the other end of the sling cord.

(11) Specimen A16-169702: bag, 6½″ x 5½″. Complete web, 11″ x 6½″. Plate LXXXVIII, Fig. 1.

Construction: plain weave, warp stripes. The specimen seems to indicate a method of warping known to various South American tribes,[1] but rarely used by ancient Peruvian weavers. I know of no other example from any other coastal period or site. The warp yarn seems to have been wound around a frame or small object in such a manner as to form a seamless tubular band with selvages top and bottom. The Cañete specimen has a key loomstring. The warp, first fastened to this heavier crosswise string, passes around the supporting frame 5½″ long, first to the left, let us say, coming again to the loomstring from the right. The warp turns about the loomstring, is carried to the right around the object, and comes to the loomstring from the left. Warping done in this manner is similar to a lacing process. The key loomstring in the Cañete specimen is still in its original position, with four warp loops coming from, turning about, and returning to the left, followed by four warp loops coming from, turning about, and returning to the right. The detail drawing suggests much more space between the yarn groups than exists in the actual fabric (Plate LXXXVIII, Figs. 1*a*, 3).

Drawing in for colored stripes: the stripes vary from a few threads in width to about ¼″. The arrangement of colors gives the appearance of a maintained sequence without really being one. Brown yarns alternate with whatever color or group of two colors is used. At approximately regular intervals these groups of Brown and Rose, or Brown and Blue, or Brown and Golden Brown yarns are set up alter-

[1] Erland Nordenskiöld, Comparative Ethnographical Studies, vol. 2, pp. 174–177, Fig. 55, Göteborg, 1920; Ronald Olson, The Possible Middle American Origin of Northwest Coast Weaving, American Anthropologist, vol. 31, pp. 114–121, 1929.

nately. Since all the odd yarns come up on the first pick, and all the even yarns come up on the second pick, cross stripes of solid color result.

Needleknitting: a binding one loop wide is worked over the edges forming the bottom of the bag. This embroidery stitch, characteristic of the textiles of all periods on the coast, may be done with a sewing needle, and gives strength as well as decoration to seamed edges. The method of making can best be understood from the drawings (Plate LXXXVIII, Figs. 1*a*, 3).

Yarns: 56 warps by 16 wefts per inch.
2-ply wool, natural(?) dark Brown and dyed, slack-to-medium twist.

Design and Color: stripes of dark Brown, Golden Brown, Rose, Blue. Needleknitting in blocks of same colors.

(12) Specimen A16-169704: veil or scarf, 52″ x 17″, complete.

Construction: plain weave. The appearance of fine pieces like this specimen gives the impression that selvages were formed of warps more closely set than those of the remainder of the web. It is doubtful, however, that the six extreme edge warps were deliberately set closely. In manipulating wefts it is almost impossible to prevent the edges from pulling in slightly, and when they do, the outer warps are drawn together. The last 7″ to 8″ of weaving was very loosely battened. Usually the ends of ancient Peruvian weavings are lacking in any distinguishing feature which might give a clue to the beginning or ending of the work.

Yarns: 18–26 warps per inch by 14–20 wefts per inch.
Single-ply cotton, White, medium twist.

Color: White.

(13–16) Specimens A16-169710a–d: small cotton webs of unknown use, possibly for pouches or kerchiefs. a, fragment 9½″ x 5″ (full width); b, 10½″ x 5″ (complete); c, 10″ x 8½″ (complete); d, 28″ x 11″ (complete).

Construction: plain weaves of more or less open texture. The battening is very slight within the last half of specimens 169710b, c; all of 169710d is loosely woven.

Yarns: There is a noticeable irregularity in the amount of twist given to the yarns. Within the same warp or weft length the range is from slack to hard twist.

a, 26 warps by 16 wefts per inch.
2-ply cotton, White, slack twist.

b, 32 warps by 12 wefts per inch.
2-ply cotton, White, hard twist.

c, 28 warps by 14 wefts per inch.
2-ply cotton, White, slack to hard twist.

d, 16 warps by 10 wefts per inch.
2-ply cotton, White, slack to medium twist.

Color: all White.

(17) Specimen F30-169848: fragments of a garment 30″ x 29″ and 32″ x 35″.

Construction: plain weave. Three heavy loomstrings of medium Blue cotton yarn edge the end of one of the fragments. These two fragments represent wide weavings of the period and locality, since in neither fragment are the two side selvages present.

Yarns: 28 warps by 28 wefts per inch.
2-ply cotton, White and natural brown, medium twist.
Loomstrings: 3-ply cotton, each ply double.

Color: White, and dyed Blue.

(18) Specimen NE18-170262a: small fragments of cotton cloth.

Construction: plain weave.
Tie-dyeing.

Yarns: 32 warps by 30 wefts per inch.
Single-ply cotton, resist dyed, crêpe twist.

Design and Color: the small Blue scraps show the usual white squares with rounded corners and center dots common to the tie-dyeing from all areas. The dots seem to have been arranged in arcs, squares, possibly circles, all of which are familiar motive shapes in cloths of this type (Plate LXXXVIII, Fig. 4).

(19) Specimen NE18-170262b: small fragments of wool cloth.

Construction: plain weave, regularly interlocking warps and wefts. The method of interlocking is explained in detail under specimen 170322 (p. 273).

Yarns: 24–26 warps by 22 wefts per inch.
2-ply wool, dyed, slack twist. Singles tightly twisted, the doubling into 2-ply slack twist.

Design and Color: similar in both respects to specimen 170322.

(20) Specimen NE18-170262c: small fragments of cotton cloth.

Construction: plain weave.

Yarns: 34 warps by 16 wefts per inch.
2-ply cotton, White, medium twist.

Color: White.

(21) Specimen NE18-170262d: mass of 2-ply cotton yarn, White and natural brown, loosely spun.

(22) Specimen NE18-170262e: fragments of small reeds(?), or bundles of woody fibers wrapped closely with 2-ply White and Red wool yarns (Plate XC, Fig. 1).

(23) Specimen NE18-170322: fragments 28″ x 20″ (full width) with 3″ fringe; 20″ x 36″ (whole 20″ width plus 16″ fragment sewn together).

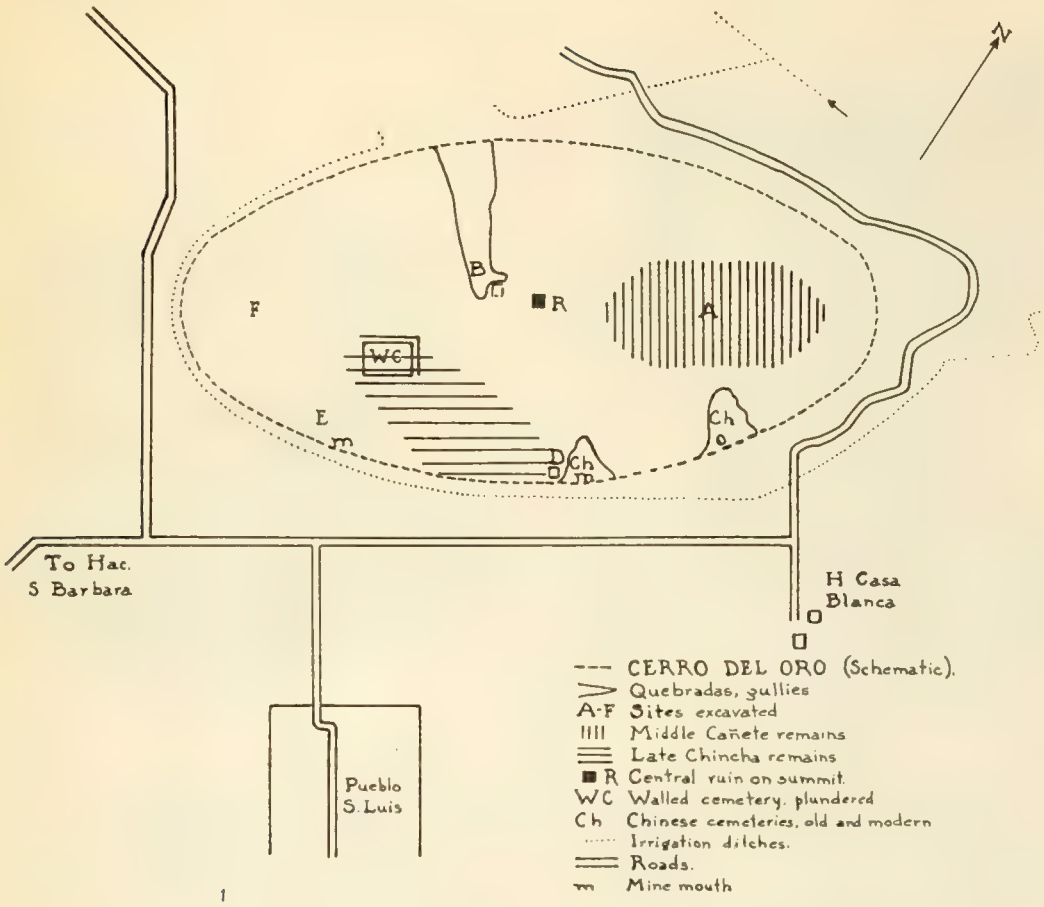
Construction: plain, with regularly interlocking warps and wefts. The technique is that used for multicolored patchwork fabrics of the Early Nazca, Paracas Necropolis, and Middle periods on the coast.[1] The method of making seems to have required scaffolding or skeleton wefts placed at intervals of ¾″ approximately. Warps were strung over these to make one unit of the geometric pattern; warps on the same plane interlocked end-to-end to form an adjacent pattern unit. The setting-up of the warps determined both the design shapes and the color arrangement, since wefts of the same color as the warp set-up crossed each design unit. In the Cañete specimen there are no vestiges of these skeleton yarns remaining in place. Plate LXXXIX, Figs. 2*a*, 2*b*, 2*c*, shows design and technique.

Fringe: the 3″ fringes at the bottom of the garment were made at the same time as the web. Each yarn was looped between a warp yarn in the same plane as if to be used for an additional design unit, and a skeleton weft yarn at the required depth, subsequently removed. Four doubled wefts cross the fringe warps. The loop ends were left uncut.

Yarns: 32 warps by 18 wefts per inch.
2-ply wool, dyed, medium twist.

Design and Color: parts of three large motives remain. The center detail of each motive is a cross, bordered by three ½″ bands. On each side an arrangement of checkered motives elaborates the cross. Colors are the familiar Peruvian Brown and Red, a dark Blue, and Yellow.

[1] A Peruvian Multicolored Patchwork, American Anthropologist, vol. 35, pp. 87–94, 1933.



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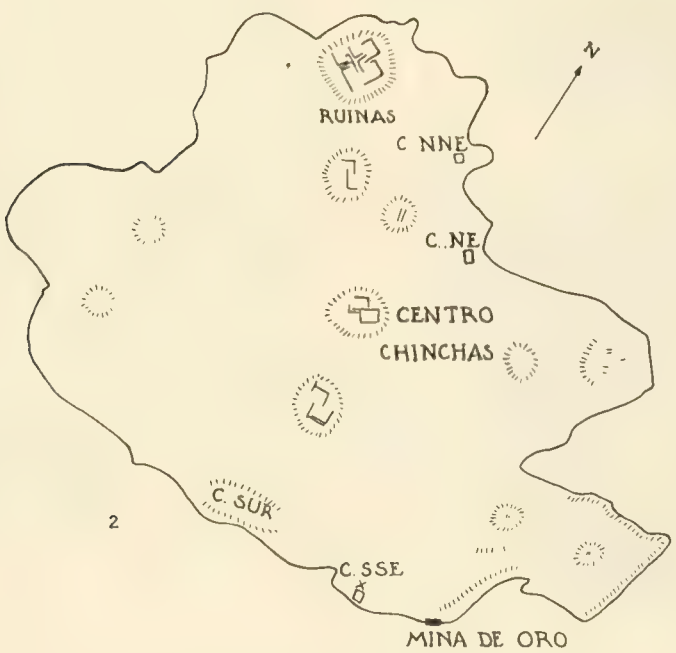
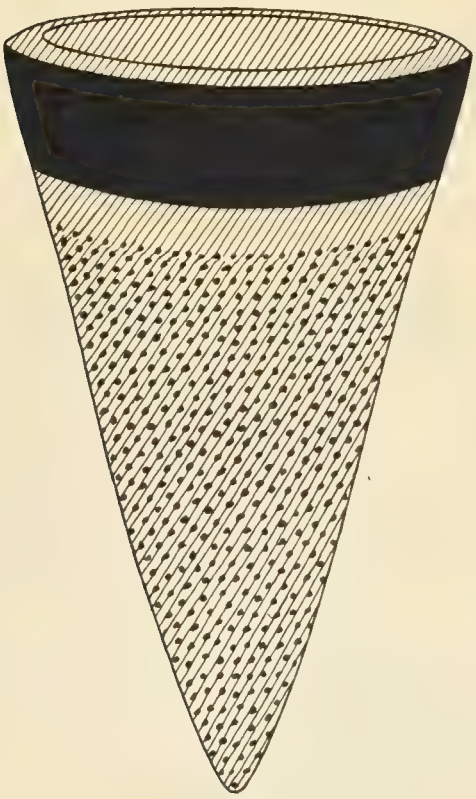


2

CERRO DEL ORO, PLANS



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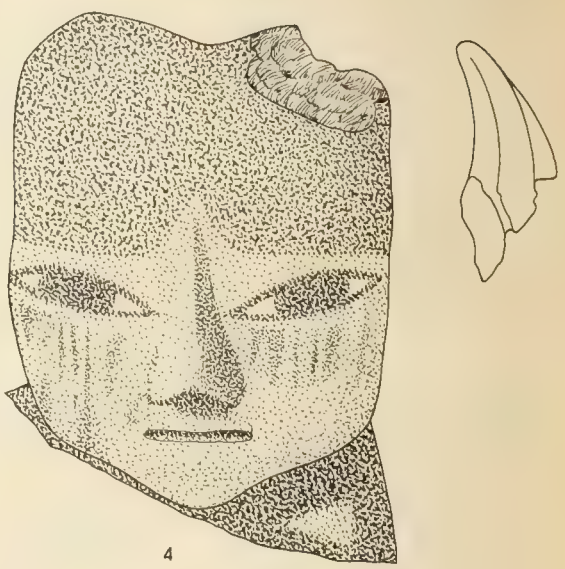
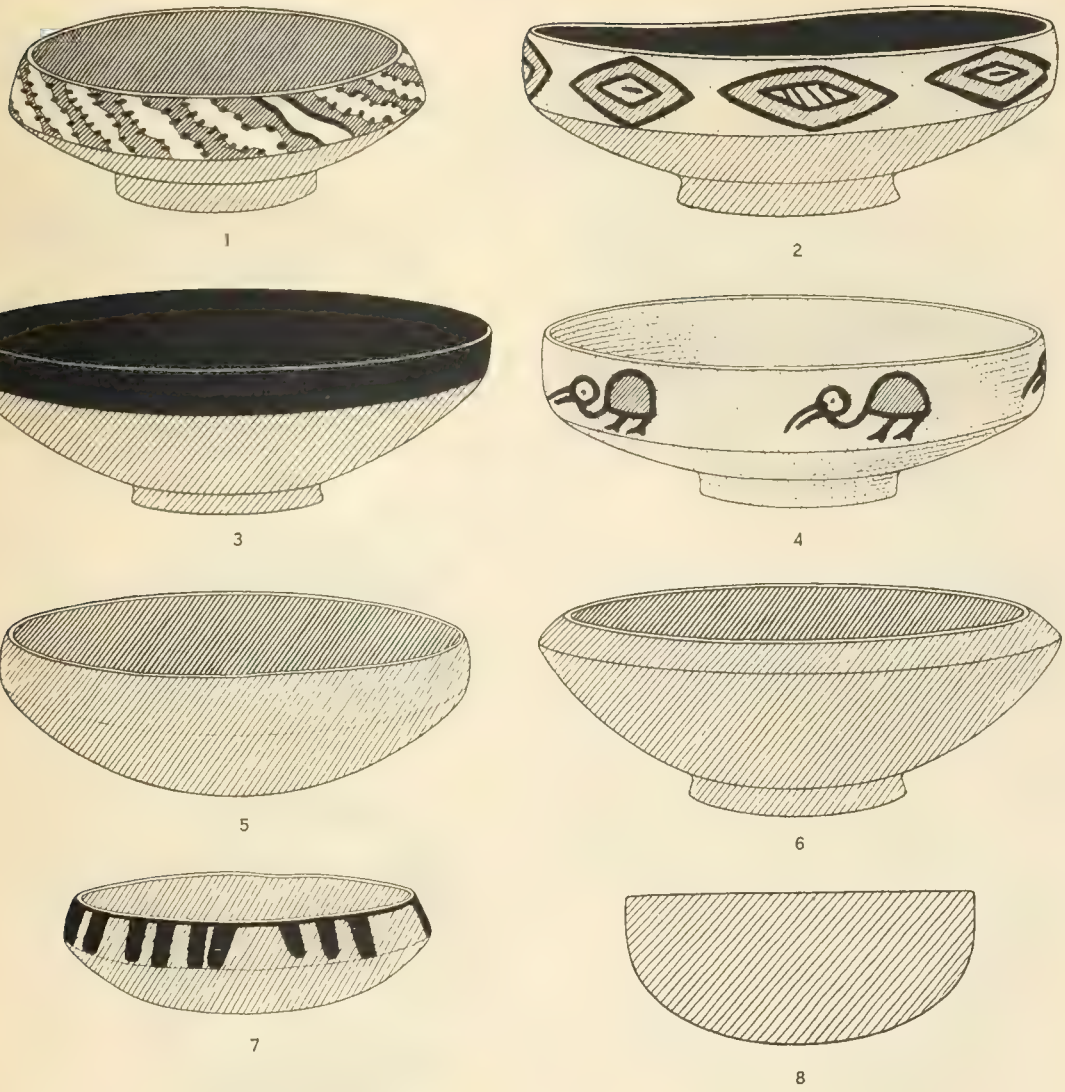


4

MIDDLE CAÑETE POTTERY FROM CERRO DEL ORO



MIDDLE CAÑETE POTTERY FROM CERRO DEL ORO
LOW BOWLS, WITH AND WITHOUT FOOT

MIDDLE CAÑETE POTTERY FROM CERRO DEL ORO: PLATE-SHAPED BOWLS

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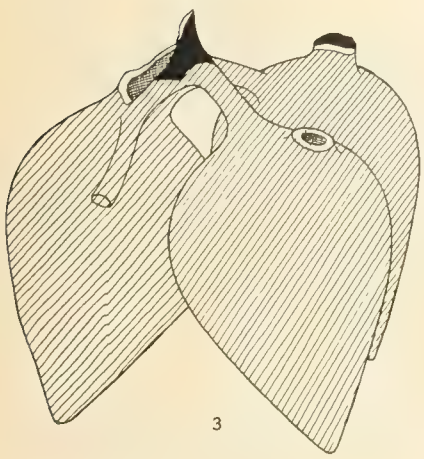

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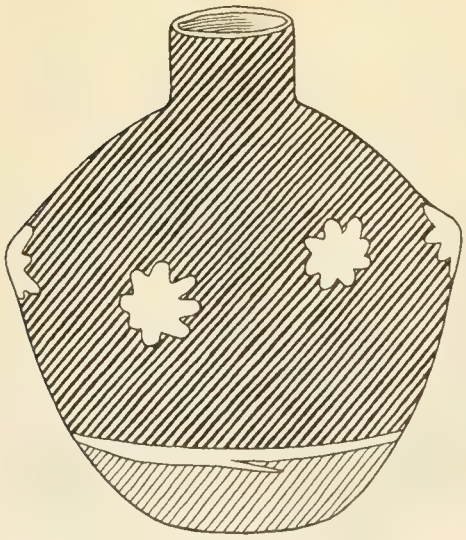
MIDDLE CAÑETE POTTERY FROM CERRO DEL ORO: DOUBLE-SPOUT JARS



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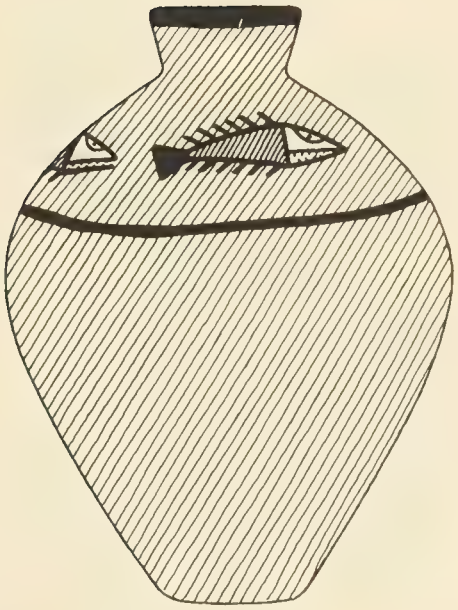

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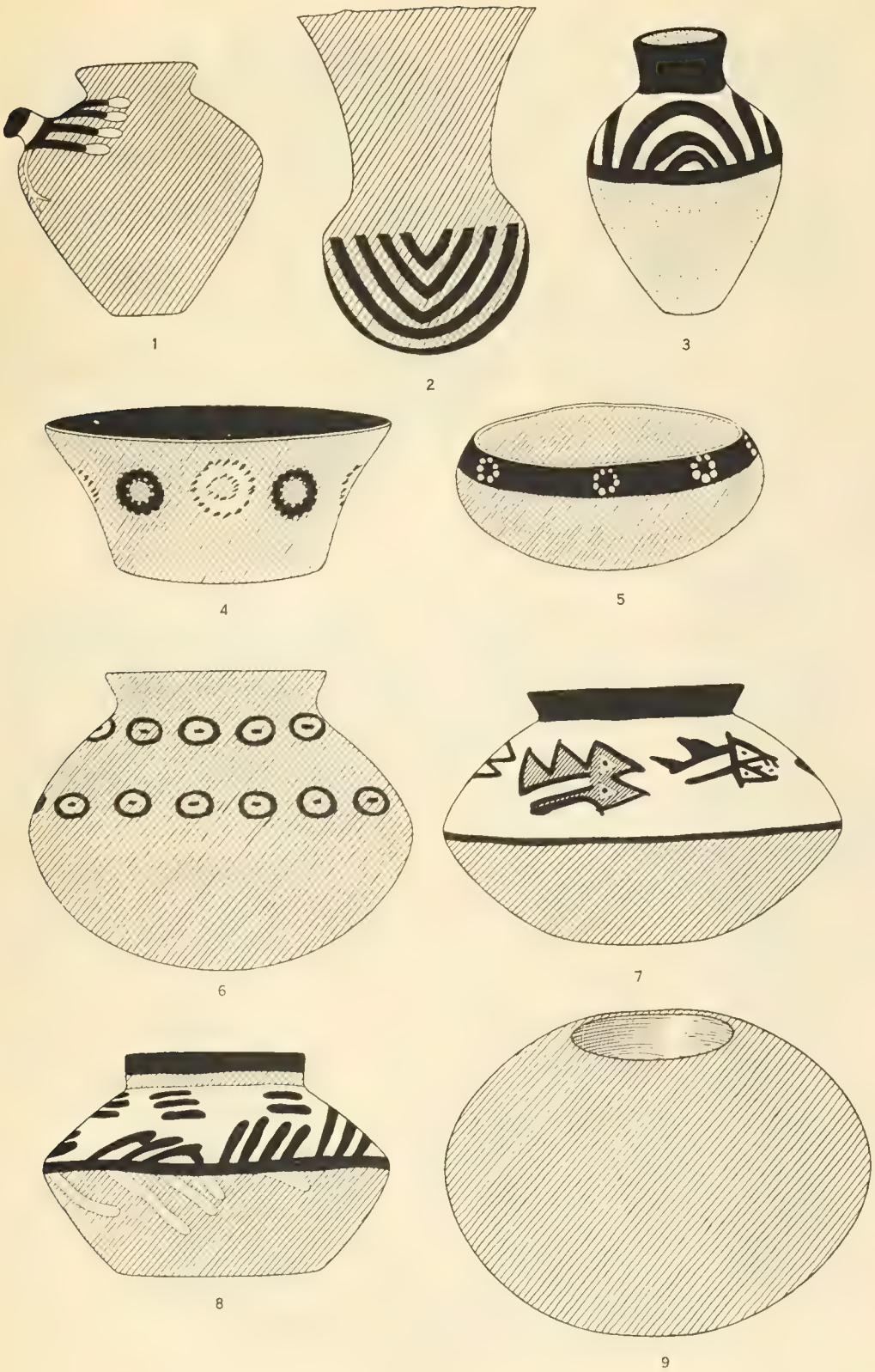
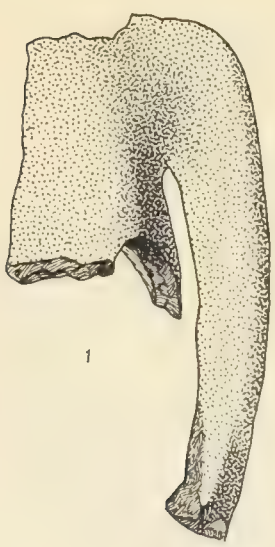
MIDDLE CAÑETE POTTERY FROM CERRO DEL ORO: JARS



MIDDLE CAÑETE POTTERY FROM CERRO DEL ORO: SMALL JARS AND BOWLS



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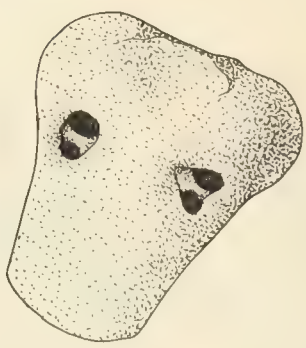

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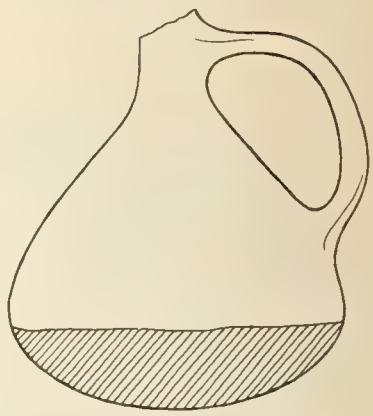

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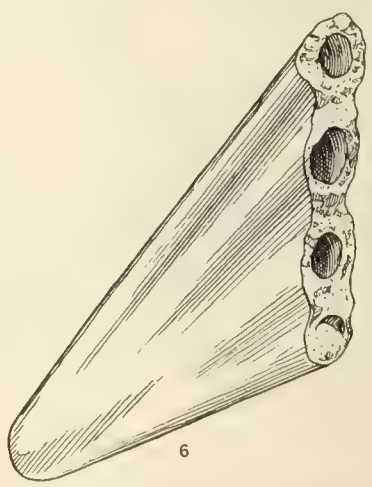

6

MIDDLE CAÑETE POTTERY FROM CERRO DEL ORO: VARIOUS OBJECTS

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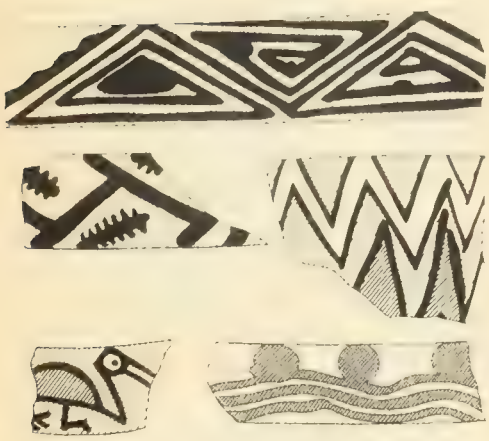

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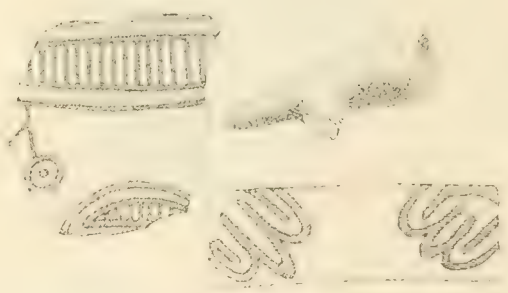

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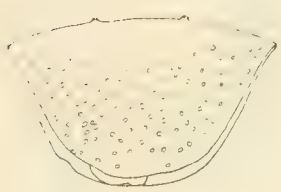

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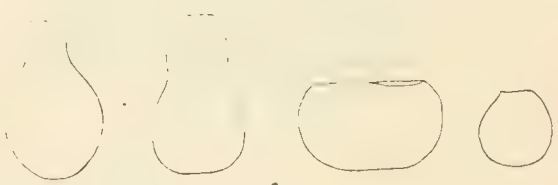

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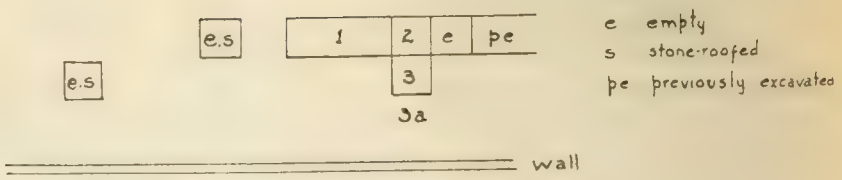
MIDDLE CAÑETE POTTERY FRAGMENTS, BELL, AND GOURDS



SITE A, TOMBS 1-3a

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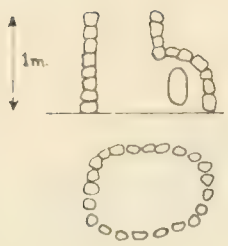

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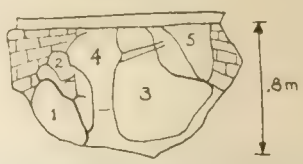

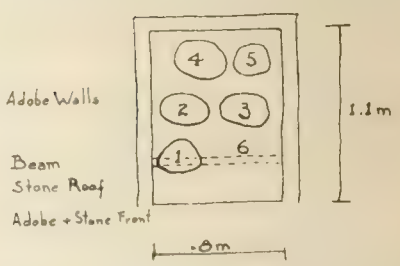

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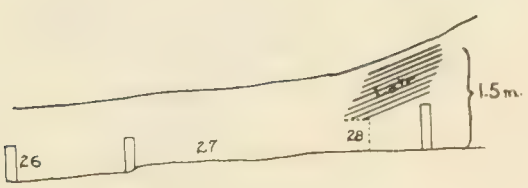

TOMBS F 26-28

4

MIDDLE CAÑETE TOMBS ON CERRO DEL ORO

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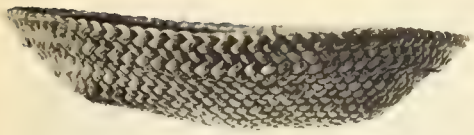

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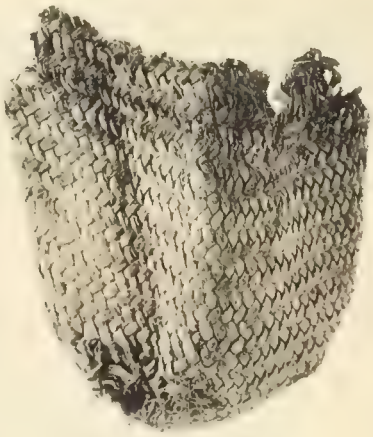

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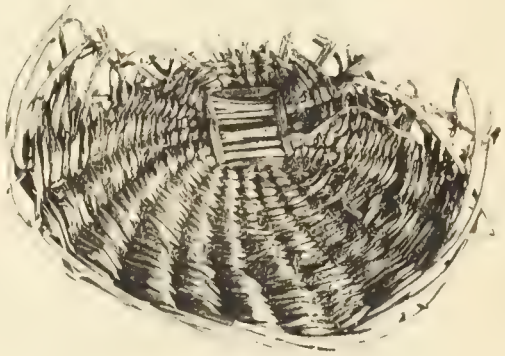

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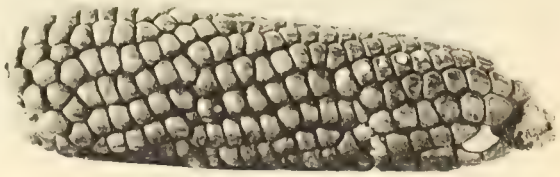

8

MIDDLE CAÑETE JARS, BASKETRY, MINIATURE SHIRT, AND MAIZE

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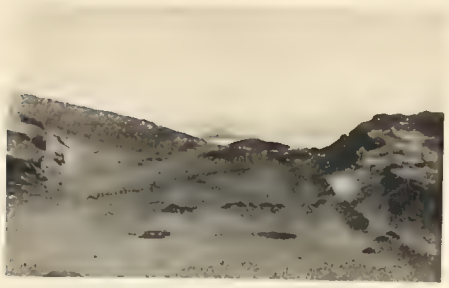

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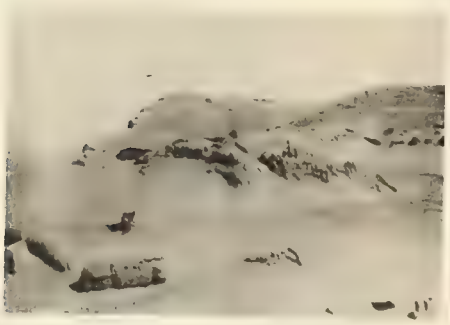

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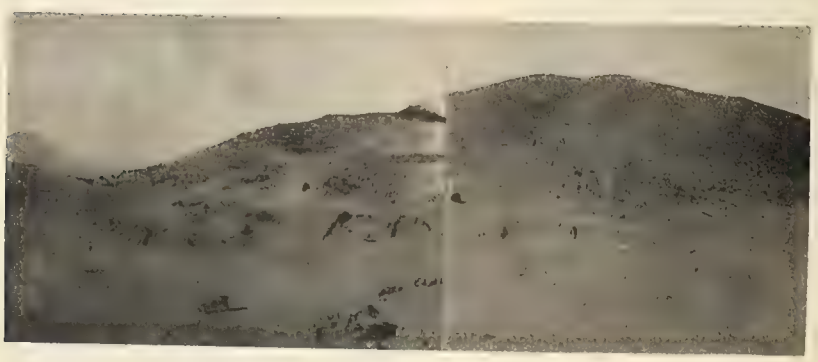

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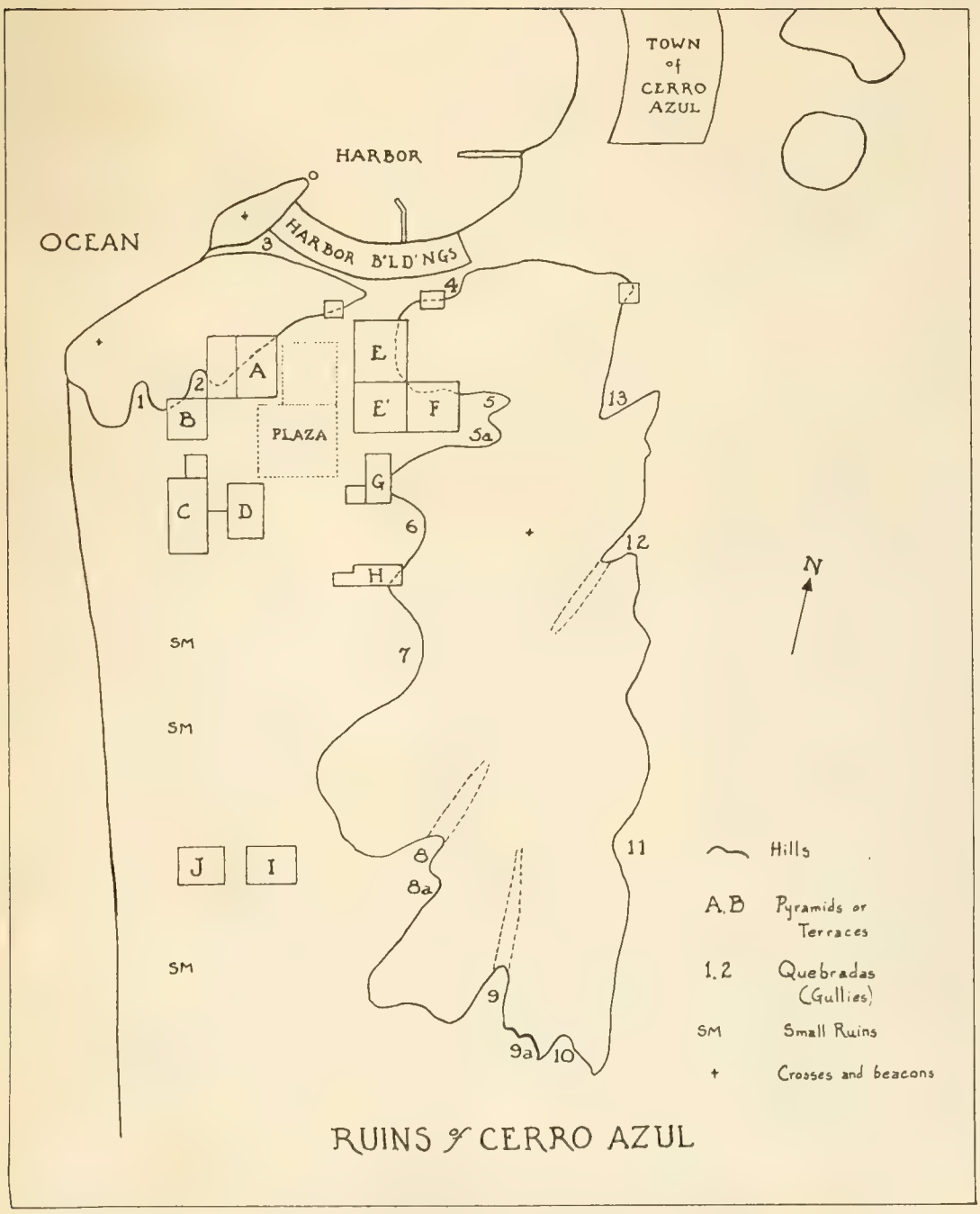
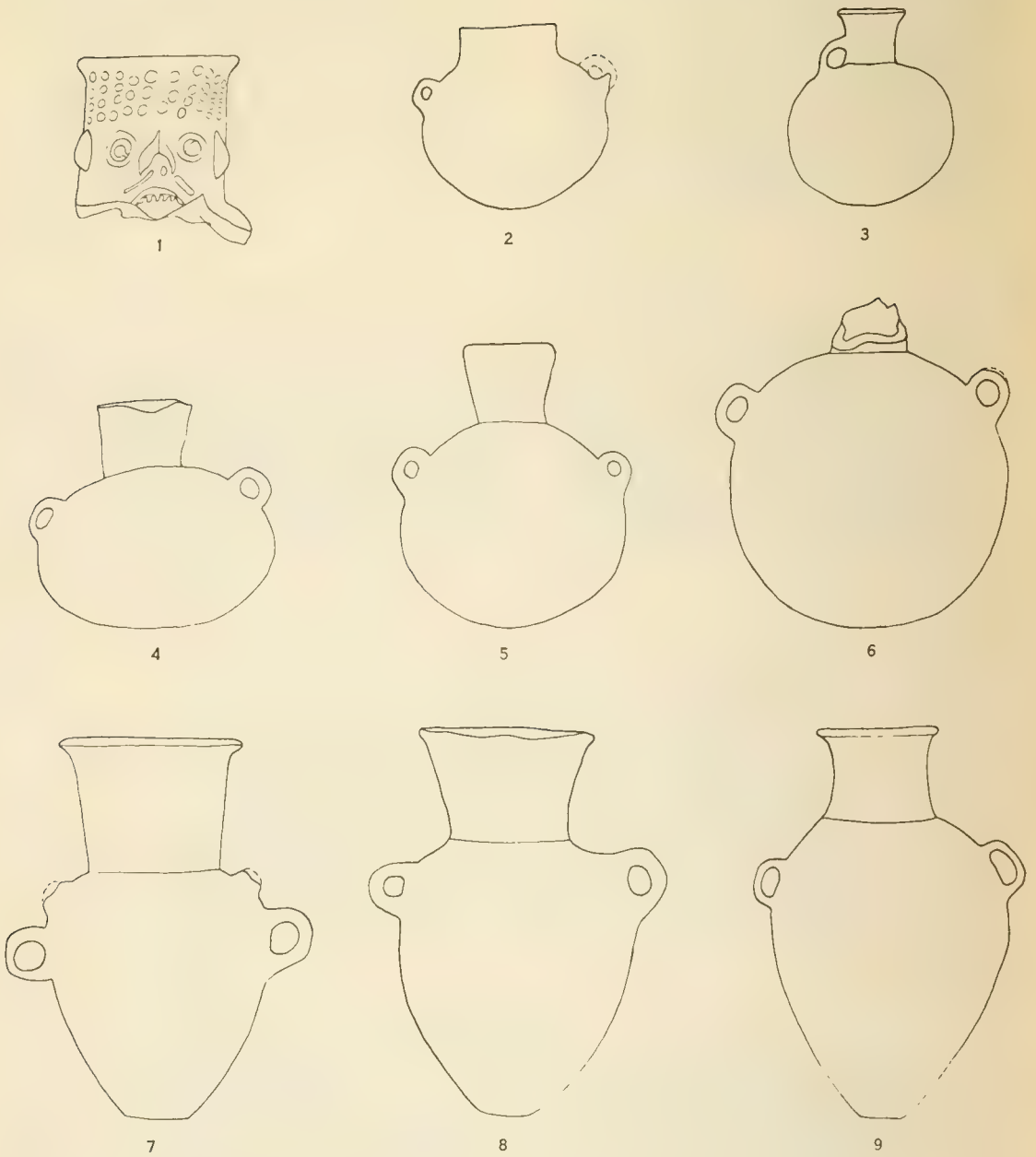
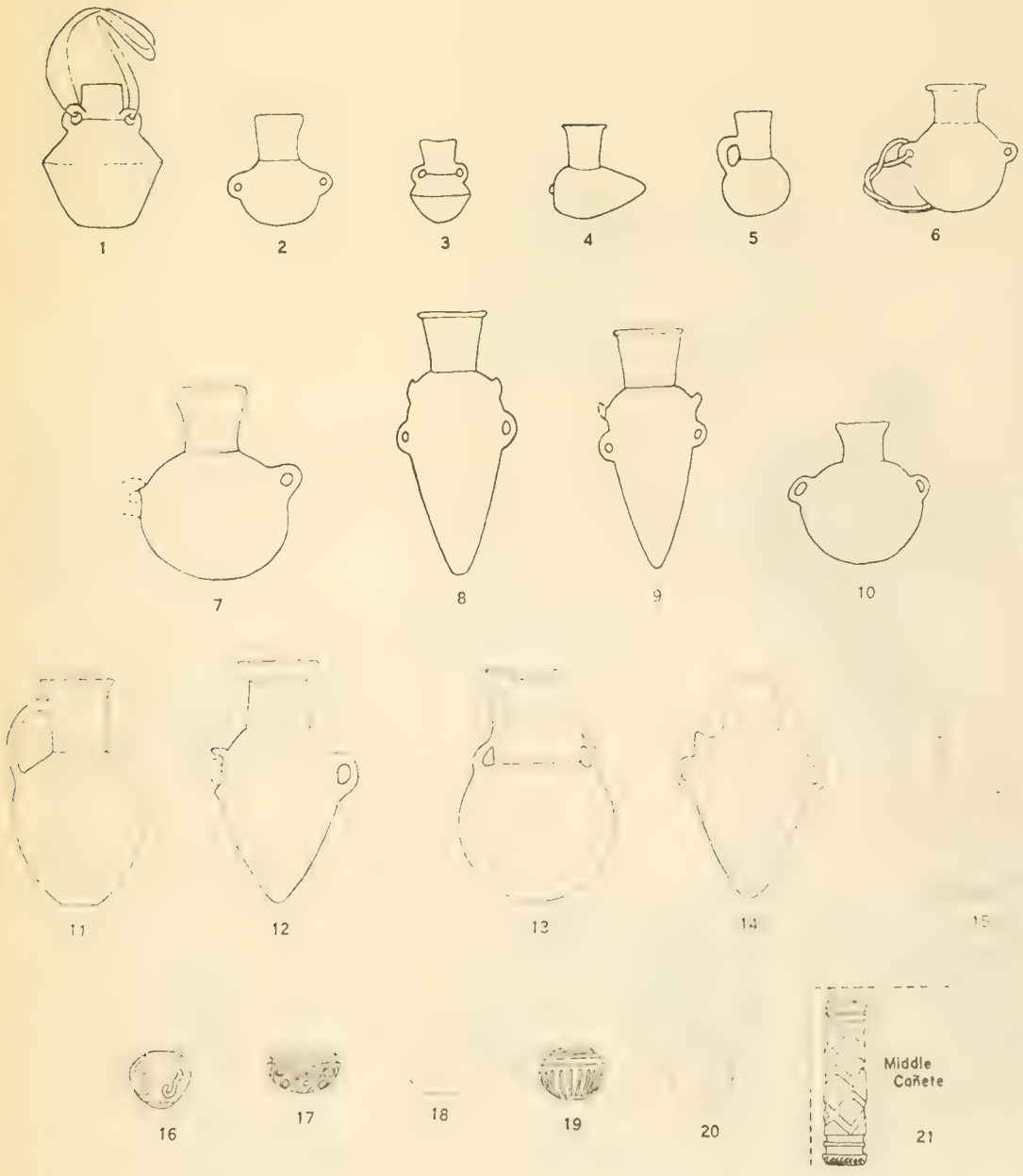
CERRO AZUL, VIEWS



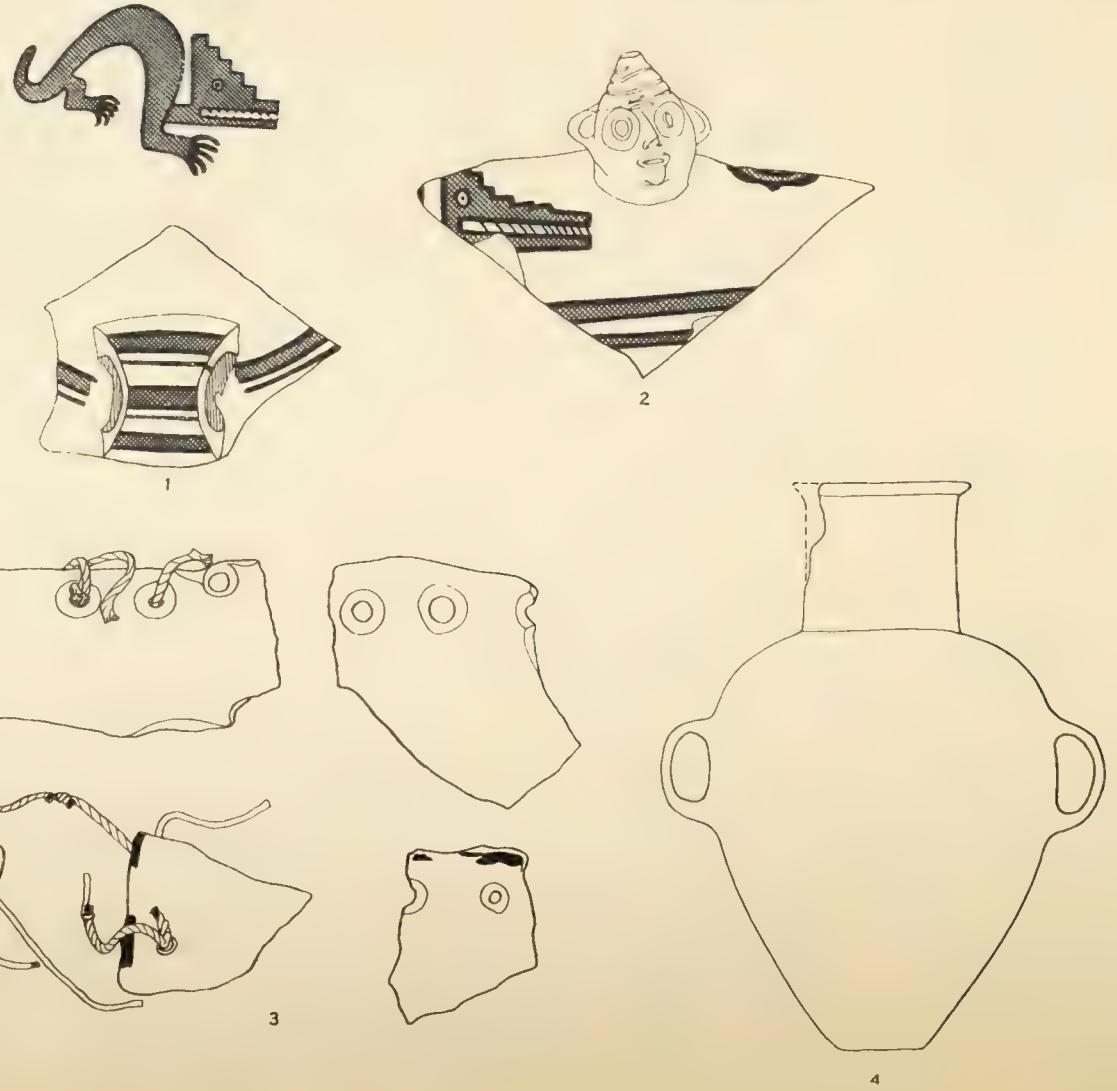
SKETCH OF LATE CAÑETE (CHINCHA) RUINS AT CERRO AZUL



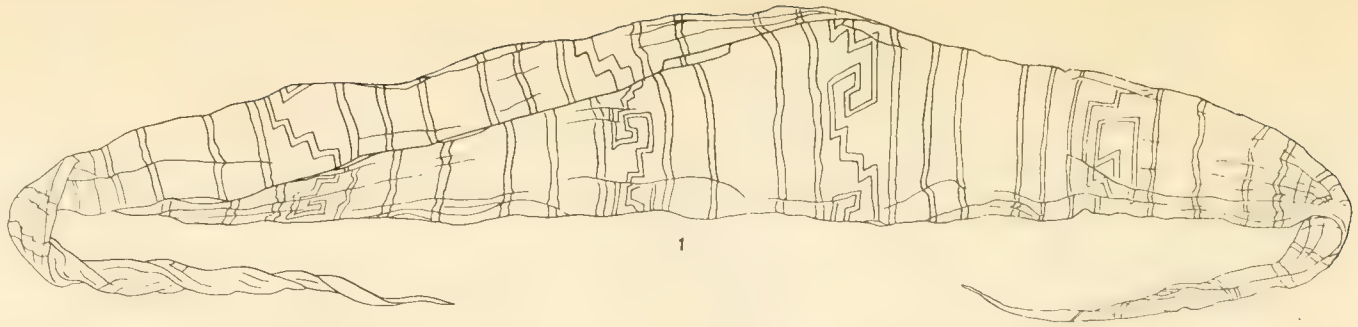
LATE CAÑETE AMPHORAS AND JARS FROM CERRO AZUL AND CERRO DEL ORO



LATE CAÑETE JARS AND SPINDLE WHORLS AND MIDDLE PERIOD WHORL
FROM CERRO AZUL AND CERRO DEL ORO



LATE CAÑETE POTTERY



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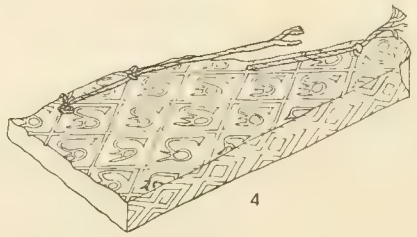

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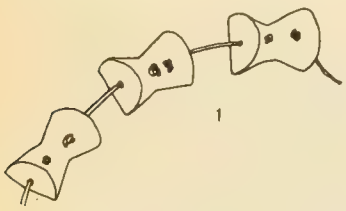
5

LATE CAÑETE CLOTH, BALANCE, CARVING, AND FIGURINES

OBJECTS FROM A LATE CAÑETE CACHE BURIED AT CERRO AZUL



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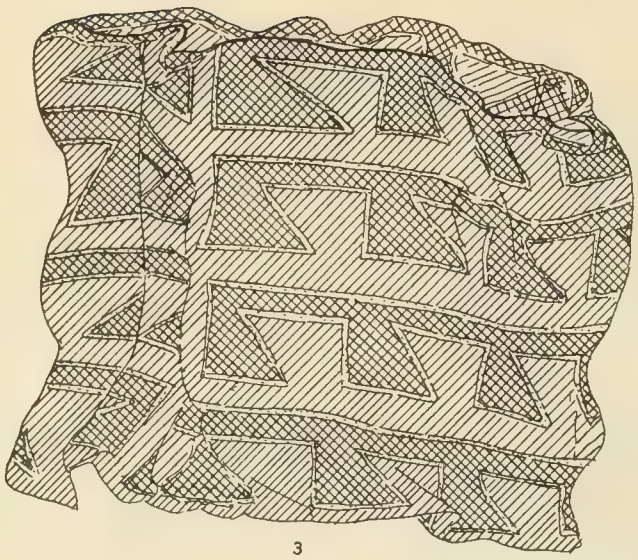

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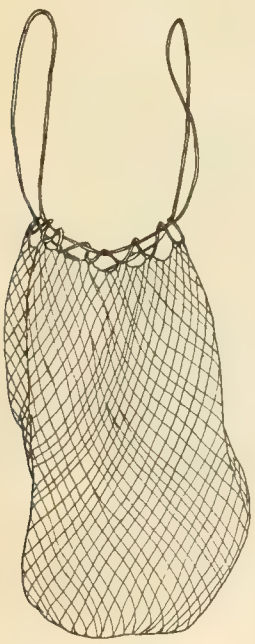

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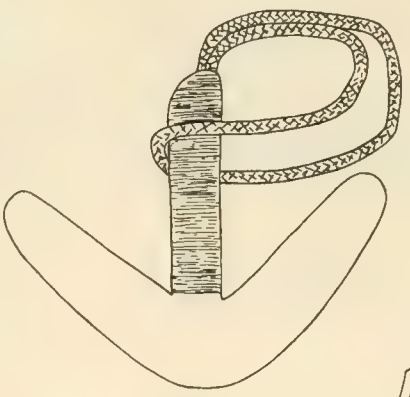

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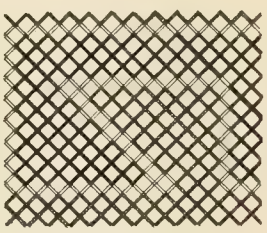

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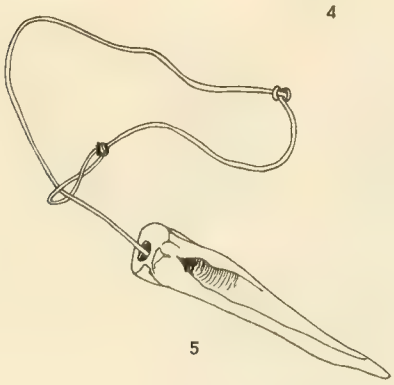

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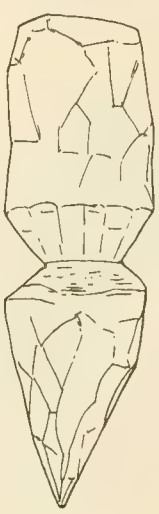

6

OBJECTS FROM A LATE CAÑETE CACHE BURIED AT CERRO AZUL

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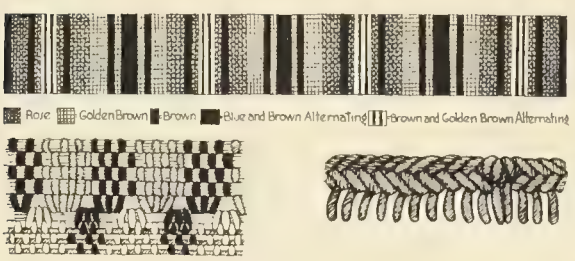

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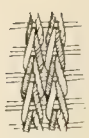
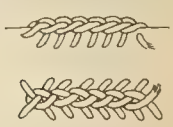


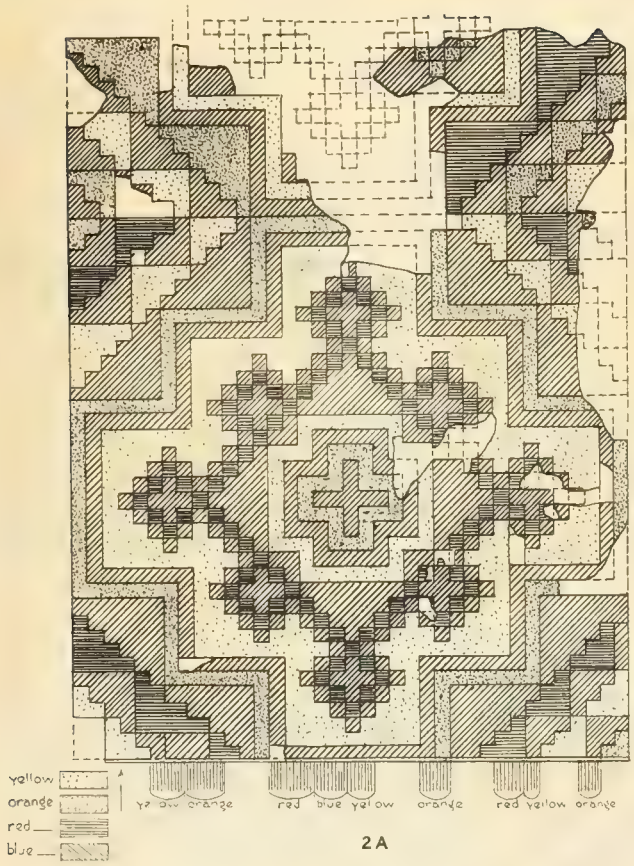
2 A



3

4

MIDDLE CAÑETE TEXTILES FROM CERRO DEL ORO



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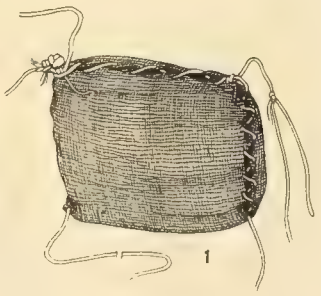

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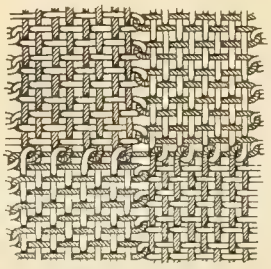

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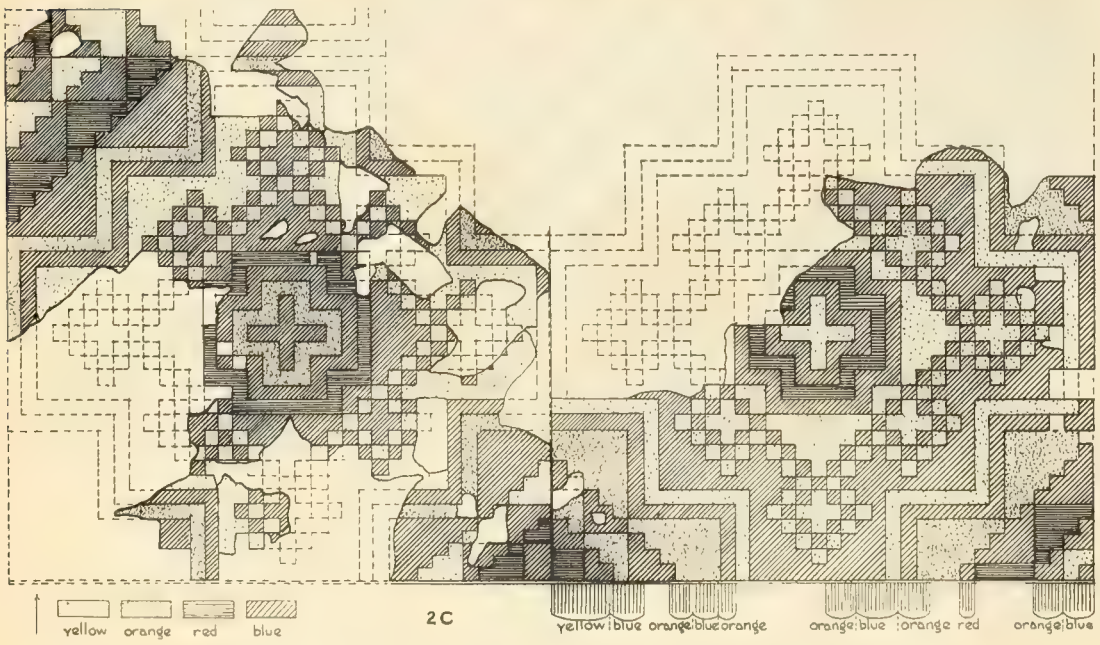

2C

MIDDLE CAÑETE TEXTILES FROM CERRO DEL ORO

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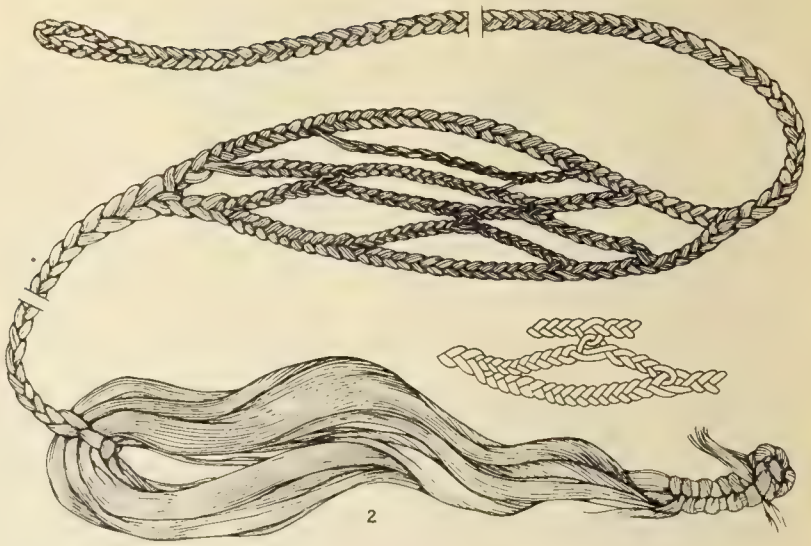

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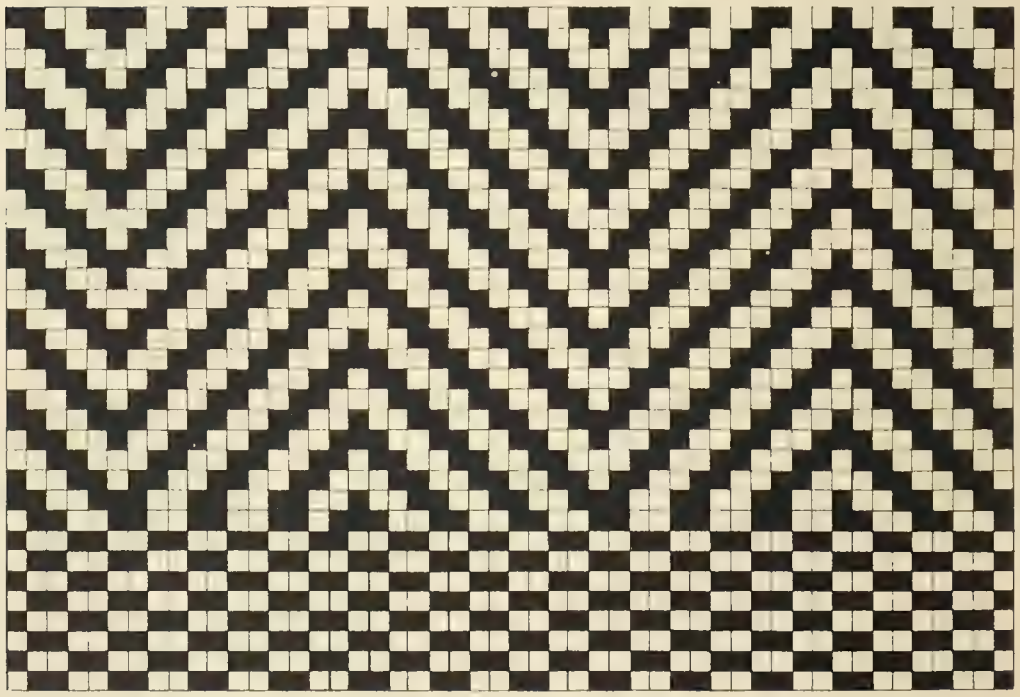

3

MIDDLE CAÑETE TEXTILES FROM CERRO DEL ORO

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